HAZARDOUS WASTE

HEARING

BEFORE THE

SUBCOMMITTEE ON NATURAL RESOURCES,
AGRICULTURE RESEARCH AND ENVIRONMENT

OF THE

COMMITTEE ON
SCIENCE AND TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

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HAZARDOUS WASTE

MONDAY, DECEMBER 7, 1981

House of Representatives,
Committee on Science and Technology,
Subcommittee on Natural Resources,
Agricultural Research, and Environment,
Washington, D.C.

The subcommittee met, pursuant to call, at 1:30 p.m., in room 2510, Knight Campus, Community College of Rhode Island, 400 East Avenue, Warwick, R.I., Hon. George E. Brown, Jr., presiding.

Mr. **Brown**. The subcommittee will come to order.

This afternoon the Subcommittee on Natural Resources, Agricultural Research, and Environment is conducting a hearing with regard to the problems of toxic waste. The primary work, planning and organizing this hearing, has been done by my distinguished colleague from this area, who I will ask to take over the Chair momentarily. But before I do that, I would like to take care of a couple of amenities if I may.

The subcommittee has been interested in this subject for a considerable period of time, and feels that it is a matter of very great importance. I, for example, and I think other Members have the same experience, have a toxic waste site in my own congressional district which is giving me all sorts of fits, and I know you have several in this area. This subcommittee has jurisdiction over the research and development aspects of this problem. The chairman of the subcommittee, Congressman Scheuer of New York, has had a great interest in this subject, and regrets that he cannot be here today. He has asked me, for protocol reasons, as the ranking Democrat to start the hearing off, which I will do.

I am amazed looking here today to see the large number of Members that we have present. Let me assure you that we rarely get this many in Washington, and I do not know what to attribute this to. I assume, however, it is to the good work of our colleague, Claudine Schneider, who has spent so much time in making the arrangements. So I will not extend my time in more fulsome praise of our distinguished colleague.

I have an opening statement which I will insert in the record at this point which goes into more detail.

[The opening statement of Mr. Brown follows:]

CONGRESSMAN GEORGE E. BROWN, JR. (36th District-CA)

HAZARDOUS WASTE HEARING

December 7, 1981

Opening Statement

It is with pleasure that I open this hearing today of the Subcommittee on Natural Resources, Agricultural Research and Environment, a subcommittee of the House Committee on Science and Technology.

The subcommittee, with distinguished members of the full committee, will examine the problem of hazardous waste. This subject has long been of concern to this subcommittee. Virtually every member of Congress and their constituents must face the problem of hazardous waste in one way or another.

Although Congress has begun to address some of the issues involving hazardous waste production and disposal, much remains to be done. Uppermost in the minds of many of my colleagues, for example, is the implementation of the federal Superfund program. This is a program designed to address problems evolved from past disposal practices. Other laws, such as the Resource Conservation and Recovery Act and the Toxic Substances Control Act are attempts to insure that we do not repeat the problems of past disposal practices.

In assessing the current state of the art of hazardous waste handling, the subcommittee, from the perspective it has in its jurisdiction over federal agencies with mandates to deal with hazardous wastes, can examine where increased effort is needed. The subcommittee must look forward to next year's budget cycle and determine priorities for research. In this light, I am looking forward to the testimony of the distinguished witnesses testifying today.

While hazardous waste has been the subject of investigation of numerous hearings in Washinton, we are here today, in the beautiful state of Rhode Island, because it is an example of an area which has the dubious distinction of having three of the 100 or so most dangerous hazardous waste sites in the country as classified by the Environmental Protection Agency. I share this unwelcome honor with the gracious lady from Rhode Island, Rep. Claudine Schneider, the distinguished member of Congress representing this area and a hard working member of this subcommittee. Ms. Schneider should be congratulated for her efforts in making this hearing possible and for the dedication and work she has shown in addressing the very serious problem of hazardous waste.

In recognition of Ms. Schneider's efforts, I think it would be appropriate that this meeting be turned over to her. Claudine has been an outstanding and effective Member of this subcommittee. She is hard working, thoughtful, charming, and a credit to the state of Rhode Island. It is with great pleasure that I now turn this hearing over to the distinguished Member of Congress, Claudine Schneider.

Mr. **Brown**. Mr. Carney.

Mr. **Carney**. Thank you very much, Mr. Chairman. I would like to thank Congresswoman Schneider for holding the hearings here. I represent a district that you can see from your lovely State. I represent the eastern part of Long Island, and certainly the problems that we have on Long Island, as related to toxic wastes and the disposal of such wastes, are similar to those that you have here in Rhode Island. We have a great deal of concern there and in every congressional district throughout the United States. I am not going to read my opening statement because of the time factor. I would, however, like unanimous consent to insert it in the record at this time.

Mr. **Brown**. Without objection.

Mr. **Carney**. In my opening statement there is a saying that, "good things come in small packages." That was referring to the State of Rhode Island and not to the snowstorm of yesterday. I would, as the Ranking Member, like to congratulate my colleague, Congresswoman Schneider, for taking the initiative, having these hearings held in your lovely State. Hopefully we will receive from the witnesses some answers that we so desperately need. With that I yield back the balance of my time.

[The opening statement of Mr. Carney follows:]

OPENING STATEMENT BY MR. CARNEY
HEARING ON HAZARDOUS WASTE DISPOSAL IN RHODE ISLAND
DECEMBER 7, 1981

THANK YOU, CONGRESSMAN BROWN. I AM PLEASED TO BE HERE TODAY IN THE SCENIC STATE OF RHODE ISLAND. CERTAINLY THE ADAGE THAT "GOOD THINGS COME IN SMALL PACKAGES" HOLDS TRUE FOR RHODE ISLAND WHICH HAS BEEN KNOWN FOR ITS JEWELRY AND TEXTILES, WOODEN INDUSTRIES, LOVELY COASTLINE, HISTORIC NEWPORT, AND THE HOST OF THE ANNUAL INTERNATIONAL CUP RACES.

I WOULD LIKE TO THANK THE CHAIRMAN OF THIS SUBCOMMITTEE, THE HONORABLE JAMES SCHEUER, FOR HIS RECOGNITION OF THE IMPORTANCE OF THE HAZARDOUS WASTE ISSUE AS A NATIONAL PROBLEM AND FOR BRINGING THIS HEARING TO RHODE ISLAND. OUR COMMITTEE HAS A MAJOR ROLE TO PLAY IN ADDRESSING NATIONAL, AS WELL AS LOCAL, ENVIRONMENTAL PROBLEMS.

MRS. SCHNEIDER, I CONGRATULATE YOU FOR YOUR HARD WORK IN ARRANGING THIS HEARING. CERTAINLY YOU HAVE BEEN QUITE AN ACTIVE MEMBER OF OUR COMMITTEE AND SUBCOMMITTEE. YOUR ENVIRONMENTAL INTERESTS ARE WELL KNOWN IN THE CONGRESS.

I TOO, AM GENUINELY CONCERNED WITH THE ENVIRONMENTAL SAFETY OF OUR NATION. OUR UNIQUE NATURAL RESOURCES AND PUBLIC SAFETY MUST BE PROTECTED. IN MY OWN DISTRICT AND ALL OF LONG ISLAND, CONTAMINATION OF GROUNDWATER FROM TOXIC WASTES IS A CRITICAL PROBLEM FOR THIS REGION DEPENDS ON A SOLE SOURCE AQUIFER FOR ITS WATER SUPPLY.

AS MY HONORABLE COLLEAGUE, MR. BROWN, HAS STATED, RHODE ISLAND ALONE HAS THREE OF THE 114 WORST HAZARDOUS DUMPSITES DESIGNATED BY THE EPA. CONGRESS ESTABLISHED THE SPECIAL "SUPERFUND" LEGISLATION AS A MEANS OF CLEANING UP PAST AND FUTURE ACCIDENTS CAUSED BY HAZARDOUS SUBSTANCES. THIS COMMITTEE DIRECTED PART OF THIS FUNDING TO THE CLEAN UP OF SITES IN RHODE ISLAND.

THE RESPONSIBILITY FOR THE CLEAN UP OF HAZARDOUS WASTE MUST BE RECOGNIZED BY FEDERAL, STATE AND LOCAL GOVERNMENTS AS WELL AS THE PRIVATE SECTOR. OUR LIST OF WITNESSES TODAY SURELY REFLECTS THOSE SECTORS. I WOULD LIKE TO THANK THESE WITNESSES WHO HAVE AGREED TO TESTIFY TODAY. I AM SURE THEIR INPUT WILL BE MOST VALUABLE TO THIS HEARING AND I LOOK FORWARD TO HEARING FROM EACH OF THEM.

SO WITHOUT ANY FURTHER DELAY . . .

Mr. **BROWN**. Thank you very much. I will turn the gavel over to Claudine, and she, after saying a few nice words and introducing the other members of the subcommittee, will introduce our witnesses.

Mrs. **SCHNEIDER** [presiding]. I will take the opportunity to welcome you here and thank you for joining us in participating in the House Natural Resources Subcommittee hearing on hazardous wastes.

I would like to introduce some of the Members of Congress who have taken time out of their busy schedules and important time out of their districts to join us today. On my far left is Congressman Vin Weber, a first-term representative from Minnesota. He has been endorsed by the League of Conservation Voters for his courage in fighting pork-barrel energy and water projects. He was one of my friends that helped me to defeat the funding for the Clinch River reactor.

Next to him is Congressman Fish, the Ranking Minority Member on the House Science Subcommittee on Energy Development. Congressman Fish is a leading advocate in the Congress of environmentally sound technologies such as solar power. I had the good fortune to serve with him on the Energy Committee.

Congressman Carney of Long Island was just elected to Congress in 1978, but has already been appointed the ranking minority member of the Natural Resources Subcommittee, the man I look to for guidance when making decisions. He has provided direction to the Environmental Protection Agency's research programs.

Congressman George Brown of California is our honorary chairman and one of the most experienced and respected members of the House Science Committee. He is a former chairman of the Natural Resources Subcommittee and has been a leader on environmental issues in the Congress for the past 20 years.

To my right, is another newly elected Member of Congress, Congressman Judd Gregg from New Hampshire. Mr. Gregg is in his first term and has made a name for himself by taking the lead in developing legislation to understand and control the phenomenon of acid rain.

The Members here today are from different parts of the country, but all of us share a common interest in developing effective solutions to the hazardous waste problem. Several years ago, a series of disasters—the Valley of the Drums in Kentucky, Love Canal in New York—dramatized an unpleasant fact: the chemical revolution that had contributed so much to our standard of living also had potentially deadly consequences for the public's health. The same industries that develop the pesticides, pharmaceuticals, synthetic fibers and other miracles of modern technology on which we depend also generate between 300 and 400 pounds of hazardous wastes per person, per year.

What happens to that waste? Until very recently, it was dumped, stacked, or poured into landfills, where it was soon forgotten. The result? We may have, according to the EPA, an estimated 2,000 dumpsites nationwide that pose serious health or environmental problems. Love Canal brought home the consequences of such neglect in a way we can all understand—200 families had to abandon their homes when some of the 20,000 metric tons of waste stored in the canal seeped through their basements and backyards.

Some of the Members on our panel have their own Love Canals. Congressman Gregg's district includes the Gilsum dumpsite near Nashua, ranked by the EPA as one of the worst in the country. Congressman Brown's district includes the notorious Stringfellow dumpsite, rated the worst in the State of California. Rhode Island has the unfortunate distinction of having 3 of the 115 dumpsites on EPA's emergency list: the Picillo Pig Farm in Coventry, the Western Sand & Gravel waste pits in Burrillville, and the Davis site in Smithfield.

We have made some important progress since Love Canal. Last year, Congress enacted the Superfund, which will pay for the cleanup of the worst abandoned dumpsites in the Nation, including those in New Hampshire, California, and Rhode Island that I just named. The Resource Conservation and Recovery Act, which was enacted by the Congress in 1976, will set safe standards for the handling, storage, treatment, and disposal of hazardous wastes. The act allows the EPA to sue any company that violates the standards, which will regulate hazardous wastes from the cradle to the grave.

Our Science Committee has jurisdiction over the Environmental Protection Agency's research budget, which supplies the vital information on which decisions are based under both the Superfund and the Resource Conservation and Recovery Act. Two examples show how research can be used to make policy:

Current EPA regulations assume that all hazardous wastes are equally dangerous to the public health. Obviously, a methodology for measuring whether a particular group of chemicals is more hazardous than another could make all the difference in deciding which dumpsites needed the most immediate attention.

In addition, the quality of EPA's monitoring technology will determine how effective the Agency is in detecting violations of the complex standards set by the Resource Conservation and Recovery Act.

The quality of EPA's research is important not only to the proper execution of its responsibilities under existing programs like Superfund—it is also expected to provide the Congress with information to anticipate future problems. That corresponds with the House Science Committee's own mission: to take a long-range view of the challenges that will face us in the future, and to develop the information that will help us to meet those challenges.

If we want to anticipate problems instead of reacting to crises, we should be asking ourselves hard questions now.

The Superfund will only pay for the cleanup of the worst sites. Once it is exhausted, the responsibility for cleaning up the remainder will fall to the States. Will the information developed through our experience with the Superfund be available and useful to the States?

The decision as to how and where to site future hazardous-waste facilities will also be left to the States. Are we developing standards for designing and monitoring sites to guarantee the public's safety?

Information about the health effects of hazardous wastes, particularly in low concentrations, can often only be determined after decades of careful observation. Are we beginning the kinds of long-term population studies that might yield such information?

I hope our hearing today will be able to answer these and other questions about the direction of our hazardous waste research program. We want to avoid future Love Canals by careful planning in the present.

Nothing less than the public's health is at stake, so it is imperative that we go forward in seeking appropriate solutions.

[The opening statement of Mrs. Schneider follows:]

OPENING REMARKS
OF
REP. CLAUDINE SCHNEIDER
DECEMBER 7, 1981

MR. CHAIRMAN, I WANT TO THANK YOU, AND THE MEMBERS OF THE COMMITTEE FOR BEING HERE TODAY. I ASKED FOR THIS HEARING TO DRAMATIZE ONE OF THE MOST IMPORTANT ISSUES FACING AMERICA IN THE 80'S -- THE PROBLEMS OF TOXIC WASTES.

TODAY WE ARE ONLY BEGINNING TO FACE THE DEADLY LEGACY OF THE CHEMICAL REVOLUTION. IN THE PAST FORTY YEARS OUR SOCIETY HAS BEEN TRANSFORMED THROUGH THE MIRACLES OF MODERN SCIENCE. VIRTUALLY EVERYTHING WE TOUCH TODAY IS SYNTHETIC. THE PLASTIC IN EYE GLASSES, THE CHEMICALS IN COSMETICS, THE SYNTHETICS IN CLOTHING FABRICS, THE MAN-MADE MATERIALS IN SHOES, THE VARIOUS PLASTICS AND SYNTHETICS USED IN BUILDING MATERIALS FROM FORMICA TO FORMALDEHYDE INSULATION. (AFTER ALL, HOW MANY NAGUAS HAVE BEEN SLAUGHTERED TO COVER ALL THOSE DINETTE SEATS?)

VIRTUALLY EVERY PART OF MODERN LIFE IS TOUCHED NOT DAY-BY-DAY BUT MINUTE-BY-MINUTE BY PRODUCTS CONCEIVED AND PRODUCED IN THE LABORATORIES OF THE CHEMICAL INDUSTRY.

THIS -- IN ITSELF -- IS NOT BAD. HUMAN BEINGS, AFTER ALL, HAVE THE POWER OF REASON. AND THERE IS NO REASON WHY WE SHOULD NOT ENJOY THE BENEFITS OF MAN'S FERTILE IMAGINATION IF IT CAUSES NO HARM. BUT THAT. OF COURSE, IS THE QUESTION. WHAT IS THE HARM? WHAT ARE THE RISKS INVOLVED?

THERE ARE TWO LESSONS OF RECENT DECADES WHICH WE CANNOT IGNORE. THE FIRST IS THAT CONTINUED EXPOSURE, EVEN AT VERY LOW LEVELS, TO TOXIC SUBSTANCES IS FAR MORE LIKELY THAN PREVIOUSLY EXPECTED TO HAVE ADVERSE HUMAN HEALTH EFFECTS.

THE SECOND IS THAT VIRTUALLY EVERY TIME WE IMPROVE OUR ABILITY TO TEST FOR TOXIC POLLUTANTS WE DISCOVER THAT THERE ARE NEW AND UNEXPECTED DANGERS TO HUMAN HEALTH.

WE ARE HERE TODAY TO DISCUSS THE POTENTIAL DANGERS TO THE PEOPLE OF RHODE ISLAND FROM THREE TOXIC DUMP SITES IDENTIFIED AS POTENTIALLY DANGEROUS BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY.

THAT IN ITSELF IS IRONIC. UNLIKE TEXANS OR ALASKANS WE ARE NOT CAUGHT UP IN THE BIGNESS IS BETTER SYNDROME. RHODE ISLAND IS SO SMALL THAT WE COULD BE LOST IN THE VASTNESS OF ALASKA'S ARCTIC WASTES OR THE ENDLESS MILES OF WEST TEXAS. BUT WE HAVE THREE OF 113 TOXIC WASTE SITES IDENTIFIED BY EPA.

THOSE WHO UNDERSTAND THE HISTORY OF OUR REGION WILL ALSO UNDERSTAND OUR PROBLEMS. AS THE INDUSTRIAL REVOLUTION REACHED OUR NATION IT SPREAD ACROSS NEW ENGLAND FIRST. AS NEW INDUSTRIAL PROCESSES WERE ADOPTED IT WAS THE CANNY YANKEE BUSINESSMAN WHO WAS FIRST TO ADOPT IT. AND THOSE SAME BUSINESSMEN WERE NO BETTER AND NO WORSE THAN ANY OTHERS IN THEIR PRACTICES IN DISPOSING OF TOXIC WASTES LEFT BEHIND BY EACH NEW PROCESS.

IN THE TENOR OF THE TIMES THERE WAS NO EVIL INTENT. PEOPLE HONESTLY BELIEVED THAT IT WAS SAFE TO PUT TOXICS INTO METAL DRUMS AND LEAVE THEM IN LANDFILLS. AFTER ALL, WHO WOULD SUSPECT THEY WOULD EVENTUALLY LEAK OUT AND ENDANGER THOUSANDS OF INNOCENT AMERICANS.

WE ARE NOT UNIQUE IN NEW ENGLAND -- WE ARE ONLY A BIT AHEAD OF THE REST OF THE NATION. THERE ARE TOO MANY DECADES OF THOUGHTLESS DISPOSAL OF TOXIC WASTES. THERE ARE TOO MANY DUMPS AND LANDFILLS LIKE THE VALLEY OF THE DRUMS AND THE LOVE CANAL OUT THERE -- TICKING LIKE TOXIC TIME BOMBS -- WAITING TO BE DISCOVERED -- HOPEFULLY BEFORE THEY KILL INNOCENT AMERICANS. THE PROBLEM IS NOT RHODE ISLAND'S OR EVEN NEW ENGLAND'S. IT IS A NATIONAL PROBLEM -- AND IT REQUIRES A NATIONAL SOLUTION.

I HOPE THAT THE RESULT OF TODAY'S HEARING WILL BE A BETTER KNOWLEDGE OF OUR LOCAL PROBLEMS -- AND PERHAPS AN OPPORTUNITY TO ADDRESS A LOCAL CLEANUP AS A NATIONAL DEMONSTRATION PROJECT. WITH THAT POSSIBILITY IN MIND -- LET US BEGIN.

Mrs. **Schneider**. I would like to begin this hearing by calling on our first witness, Dr. Russell Peterson, the president of the National Audubon Society, who has generously agreed to provide us with an overview of the toxic waste situation nationwide.

Welcome, Dr. Peterson.

STATEMENT OF RUSSELL W. PETERSON, PRESIDENT, NATIONAL AUDUBON SOCIETY, NEW YORK, N.Y.

Mr. **Peterson**. Thank you, Madam Chairwoman, members of the committee. I appreciate very much the opportunity to come here today to talk to you about this critical problem. The accumulation of toxic wastes in our environment is a growing threat to all life, plant life and animal life and human life. The recently enacted laws that help control the problem, although promising, have as yet had little impact. A vast amount of research and field investigation needs to be done. In spite of the seriousness of the problem, the Reagan administration is trying to scuttle the means established by law to cope with the problem, and I hope that you Members of Congress will prevent that from happening.

The dimensions of the problem in broad outline are as follows: Each year 77 billion pounds of hazardous wastes are produced in the United States, about 1 pound per person per day.

Since many of these substances can have toxic effects on human beings and on wildlife when exposed to the extent of only one ten-thousandth of a pound, you get some feel for the seriousness of this problem.

There are at least 7,200 potentially dangerous chemical dumps identified, on the average of 17 per congressional district.

Groundwater, which furnishes about half of all U.S. drinking water, is particularly susceptible to contamination from toxic wastes. Many drinking water supplies have already been degraded by organic chemicals such as halogenated hydrocarbons, and heavy metals such as chromium, and many more drinking water sources are currently threatened as toxic wastes seep toward them.

Ninety percent of toxic wastes are being disposed of in an environmentally unsound manner, in unsecured landfills, through improper burning or illegal midnight dumping.

The Surgeon General about a year ago issued a report asserting that toxic wastes pose one of the great threats to the health of American citizens in the 1980's. Among many other things, toxic wastes can cause cancer and birth defects.

The most serious toxic waste problem of all, radioactive waste, grows in intensity daily with no significant commitment to dealing with it. In fact the problem is so intractable that Congress has seen fit to exclude it by definition as a toxic waste. The Comptroller General of the United States, Elmer B. Staats, before he left office reported to Congress that the Federal Government "has never articulated a firm policy on how it intends to manage, over the long term, either Federal or commercial nuclear waste," and "because of this there has also never been a clearly defined, technically feasible long-term waste management plan."

One of the greatest needs in the whole area of hazardous waste is the need for research. We are for the most part flying blindly. We know that materials truly harmful to plant, animal, and human life are being dumped into our environment, but we know little about the actual health effects from exposure to waste from specific exposure sites.

Laws have been passed, and funds made available, to begin to deal with some of the problems. But I am concerned that the antiregulatory and discriminatory budget-cutting crusade now underway in Washington could turn the toxic waste problem into the major threat to public health and the ecological integrity of this country in the 1980's.

The U.S. Environmental Protection Agency is supposed to be what its name implies—the lead agency charged with protection of the Nation's environment. EPA was established to perform a life-and-death public service in protecting the public from the dangerous chemicals now in commercial use; in seeing to the safe disposal of hazardous wastes and to the cleanup of dangerous waste sites; in insuring that the thousands of new chemicals introduced each year are safe chemicals—along with other major responsibilities for air and water pollution control, and for insuring the safe application of the billion-plus pounds of pesticides used each year.

And yet, at a time when EPA's duties are multiplying, and when it is increasingly clear that we need more research on toxic materials, the new EPA Administrator proposes to cut her overall Agency's staff and budget approximately in half and its research effort even more. As John Oakes noted in the New York Times: "Mrs. Gorsuch is, in effect, dismantling the EPA. She is making it impossible to administer the antipollution and toxic-substance-control laws that EPA was designed to oversee. Her proposals for a cut-rate Clean Air Act are a guarantee of dirtier air."

The budget cutting for environmental programs, often cuts of 50 percent or more, along with the move to lower standards, and to minimize enforcement of environmental laws, is being done in the misguided contention that environmental regulations are stifling the economy. This is simply not the case. There are no facts to support it. Environmental controls have added only a fraction of 1 percent to the annual increase in the Consumer Price Index—while the pollution control industry has created many investment opportunities and hundreds of thousands more jobs than it has displaced. Moreover, it is far less costly to society in terms of human sickness and suffering, in property damaged and destroyed, in man-hours of work lost, to deal with environmental problems head on today, rather than retreat from these problems as the Environmental Protection Agency is now doing.

The retreat is being sounded on every front. Mrs. Gorsuch has proposed suspension of standards for currently operating facilities that burn or store hazardous waste. While the proposed suspension is pending, the current standards are not being enforced, and EPA has said that replacement regulations will not be forthcoming until late 1983.

Other essential regulations, to have taken effect this past July, would require operators of hazardous waste facilities to purchase insurance for compensating victims in case of water-supply contamination. These regulations have been delayed until April 1982 for what EPA calls reevaluation.

EPA has reversed its position on permit requirements, and is now allowing expansion of toxic dumps by 50 percent without requiring a permit, and granting lifetime rather than limited-term permits to hazardous waste facilities.

EPA has sanctioned a further 2-year delay of regulations for landfills—regulations originally due in 1978. Meanwhile, landfills are subject only to weak interim requirements.

Then there is the curious case of the Superfund, established by Congress to finance the cleanup of hazardous wastes. Although the fund is supposed to be supported by both industry and the Government, EPA has budgeted for the current fiscal year only $200 million of the $298 million collected annually from industry, and proposes to allocate only $176 million next year. EPA concedes that such cuts mean 40 percent fewer site inspections, 38 percent fewer emergency site actions, and 40 percent fewer enforcement actions. As you know, the Superfund bill was directed toward collecting $1.6 billion over 5 years. Mrs. Gorsuch says that will cover only 130 sites, leaving greater than 98 percent of those identified as dangerous to be handled otherwise or to be ignored. And EPA has acknowledged that this $1.6 billion will permit dealing only with the tip of a monstrous iceberg.

As for site cleanup under the Superfund legislation, EPA has delayed the national contingency plan, due last June, which is supposed to define the procedures to deal with toxic-waste emergencies.

It would appear that EPA is attempting to return to the days when hazardous waste disposal was essentially unregulated—to the environmental dark ages when much of industry was allowed to use our air, land, and water as convenient dumping grounds—and when the costs of such activities were simply passed along to the rest of society and to future generations.

Instead of going backward, I urge that we continue our strong forward momentum established in the 1970's—and that we really look ahead as well. I am sure most of you are familiar with the Global 2000 Report to the President, completed last year by the Department of State and the Council on Environmental Quality. The report noted a number of dangerous trends, and urged that our Federal Government, and the governments of other nations, work to change these trends. Subsequently, a Global Tomorrow Coalition was formed, 55 organizations, with more than 5 million members, are represented.

I have the privilege of chairing the coalition. Its purpose is to promote awareness of global trends that threaten our life-support systems—and to promote government action to alter such trends. Our 55-member organizations have unanimously petitioned Congress to establish a permanent governmental mechanism that will help us to plan ahead. We call it a foresight capability—a sort of radar to see through the fog—a broad, constantly updated system for gathering trend data, and the ability to analyze the data and their implications so as to present a picture of the alternative choices available to the Nation's decisionmakers. The problem of toxic wastes underscores the need for such an institution.

It is puzzling, even amazing, that this country has reached the final decades of the 20th century without a single institutional entity for applying this process at the highest level of Government, where it is most needed. Surely a competent institution assigned to provide the country with foresight capability would have foreseen several decades ago, in the light of the explosive growth of the chemical industry, the need for controls to insure a safe, practical means for disposing of chemical wastes. Acting on such insights, we could have long since insured that the users of the new chemicals paid the price to cover the costs of proper waste disposal.

We must also bring foresight to bear on the implications of the accelerated buildup of nuclear wastes over the next decades. This is the super-toxic-waste problem. Though we are in the early phases of the nuclear era as projected by its promoters, we have already accumulated a frightening array of wastes, including mountains of uranium mill tailings, billions of cubic feet of low-level radioactive wastes, high-level wastes now held in dozens of locations around our country, and abandoned radioactive facilities that stand under guard awaiting the Nation's decision to spend almost as much to dispose of them as it did to build them.

With foresight capability our country should be able to do a much better job of choosing life-supporting rather than life-threatening paths into the future.

I believe that our Government is on the wrong path right now. This is especially true of the Environmental Protection Agency, which some skeptics are calling the "Environmental Polluters' Agency." We need to get the EPA back on track—in dealing responsibly with toxic wastes and the whole range of environmental problems it is supposed to be addressing.

This discussion really revolves around two simple questions.

Will we leave future generations a poisoned, wasted Earth as the deferred cost of this generation's shortsightedness?

Or will we pass on to them a healthy, bountiful, beautiful Earth—the lasting returns from the wise investments of today?

These choices are now before us.

Thank you, Madam Chairman.

[The prepared statement of Russell W. Peterson follows:]

TESTIMONY BY RUSSELL W. PETERSON ON TOXIC WASTES

The accumulation of toxic wastes in our environment is a growing threat to all life—plant, animal and human life. Recently enacted laws to help control the problem have as yet had little impact.

A vast amount of research and field investigation needs to be done. In spite of the seriousness of the problem, the Reagan administration is scuttling the means established by law to cope with the problem. Its dimensions, in broad outline, are as follows:

77 billion pounds of hazardous wastes are produced in the United States each year, about one pound per person per day.

One ten-thousandths of a pound of many of these substances can have toxic effects on human beings and on wildlife.

At least 7,200 dangerous or potentially dangerous chemical dumps have been identified. That's 17 for each congressional district.

Groundwater, which furnishes about half of all U.S. drinking water, is particularly susceptible to contamination from toxic wastes. Many drinking water supplies have already been degraded by organic chemicals, such as halogenated hydrocarbons, and heavy metals, such as chromium and many more drinking water sources are currently threatened as toxic wastes seep toward them.

Some 90 percent of toxic wastes are being disposed of in an environmentally unsound manner—in unsecured landfills, through improper burning, or by illegal "midnight dumping

The Surgeon General about a year ago issued a report asserting that toxic wastes pose one of the great threats to the health of American citizens in the 1980s. Among many other things, toxic wastes can cause cancer and birth defects.

The most serious toxic waste problem of all, radioactive waste, grows in intensity daily with no significant commitment to dealing with it. In fact the problem is so intractable that Congress has seen fit to exclude it by definition as a "toxic waste". The Comptroller General of the U.S., Elmer B. Staats, before he left office reported to Congress that the Federal Government "has never articulated a firm policy on how it intends to manage, over the long term, either Federal or commercial nuclear waste," and "because of this there has also never been a clearly defined, technically feasible long-term waste management plan."

Laws have been passed, and funds made available, to begin to deal with some of the problems. But I am concerned that the anti-regulatory and discriminatory budget-cutting crusade now under way in Washington could turn the toxic waste problem into the major threat—with the obvious exception of nuclear war—the major threat to public health and the ecological integrity of this country in the 1980's.

The United States Environmental Protection Agency is supposed to be what its name implies—the lead agency charged with protection of the Nation's environment. EPA was established to perform a life-and-death public service in protecting the public from the dangerous chemicals now in commercial use; in seeing to the safe disposal of hazardous wastes and to the clean-up of dangerous waste sites; in ensuring that the thousands of new chemicals introduced each year are safe chemicals—along with other major responsibilities for air and water pollution control, and for ensuring the safe application of the billion-plus pounds of pesticides used each year.

And yet, at a time when EPA's duties are multiplying, and when it is increasingly clear that we need more research on toxic materials, the new EPA administrator proposes to cut her overall agency's staff and budget approximately in half and its research effort even more. As John Oakes noted in the New York Times: "Mrs. Gorsuch is, in effect, dismantling the EPA, she is making it impossible to administer the anti-pollution and toxic-substance-control laws that EPA was designed to oversee. Her proposals for a cut-rate Clean Air Act are a guarantee of dirtier air."

The budget cutting for environmental programs, often cuts of 50 percent or more, along with the move to lower standards and to minimize enforcement of environmental laws, is being done in the misguided contention that environmental regulations are stifling the economy. This is simply not the case. There are no facts to support it. Environmental controls have added only a fraction of one percent to the annual increase in the Consumer Price Index—while the pollution control industry has created many investment opportunities and hundreds of thousands more jobs than it has displaced. Moreover, it is far less costly to society in terms of human sickness and suffering, in property damaged and destroyed, in man-hours of work lost, to deal with environmental problems head-on today, rather than retreat from these problems as the Environmental Protection Agency is now doing.

The retreat is being sounded on every front. Mrs. Gorsuch has proposed suspension of standards for currently operating facilities that burn or store hazardous wastes. While the proposed suspension is pending, the current standards are not being enforced, and EPA has said that replacement regulations will not be forthcoming until late 1983.

Other essential regulations, to have taken effect this past July. Would require operators of hazardous waste facilities to purchase insurance for compensating victims in case of water-supply contamination. These regulations have been delayed until April 1982 for what EPA calls "reevaluation".

EPA has reversed its position on permit requirements, and is now allowing expansion of toxic dumps by 50 percent without requiring a permit, and granting lifetime rather than limited-term permits to hazardous waste facilities.

EPA has sanctioned a further two-year delay of regulations for landfills—regulations originally due in 1978. Meanwhile, landfills are subject only to weak "interim" requirements.

Then there is the curious case of the Superfund, established by Congress to finance the clean-up of hazardous wastes. Although the fund is supposed to be supported by both industry and the Government, EPA has budgeted for the current fiscal year only $200 million of the $298 million collected annually from industry, and proposes to allocate only $176 million next year. EPA concedes that such cuts mean 40 percent fewer site inspections, 38 percent fewer emergency site actions, and 40 percent fewer enforcement actions. As you know, the Superfund bill was directed toward collecting $1.6 billion over 5 years. Mrs. Gorsuch says that will cover only 130 sites, leaving greater than 98 percent of those identified as dangerous to be handled otherwise or to be ignored. And EPA has acknowledged that this $1.6 billion will permit dealing only with the tip of a monstrous iceberg.

As for site clean-up under the Superfund legislation, EPA has delayed the national contingency plan, due last June, which is supposed to define the procedures to deal with toxic-waste emergencies.

It would appear that EPA is attempting to return to the days when hazardous waste disposal was essentially unregulated—to the environmental Dark Ages when much of industry was allowed to use our air, land and water as convenient dumping grounds—and when the costs of such activities were simply passed along to the rest of society and to future generations.

Instead of going backwards, I urge that we continue our strong forward momentum—and that we really look ahead as well. I'm sure most of you are familiar with the global 2000 report to the President, completed last year by the Department of State and the Council on Environmental Quality. The report noted a number of dangerous trends, and urged that our Federal Government, and the governments of other Nations, work to change these trends. Subsequently, a global tomorrow coalition was formed. Fifty-five organizations, with more than five million members, are represented. I have the privilege of chairing the coalition. Its purpose is to promote awareness of global trends that threaten our life-support systems—and to promote government action to alter such trends. Our fifty-five member organizations have unanimously petitioned Congress to establish a permanent governmental mechanism that will help us to plan ahead. We call it a "foresight capability"—a sort of radar to see through the fog—a broad, constantly updated system for gathering trend data, and the ability to analyze the data and their implications so as to present a picture of the alternative choices available to the Nation's decision-makers. The problem of toxic wastes underscores the need for such an institution.

It is puzzling, even amazing, that this country has reached the final decades of the twentieth century without a single institutional entity for applying this process at the highest level of government, where it is most needed. Surely a competent institution assigned to provide the country with foresight capability would have foreseen several decades ago, in the light of the explosive growth of the chemical industry, the need for controls to ensure a safe, practical means for disposing of chemical wastes. Acting on such insights, we could have long since ensured that the users of the new chemicals paid the price to cover the costs of proper waste disposal.

We must also bring foresight to bear on the implications of the accelerated buildup of nuclear wastes over the next decades. This is the super-toxic-waste problem. Though we are in the early phases of the nuclear era as projected by its promoters, we have already accumulated a frightening array of wastes, including mountains of uranium mill tailings, billions of cubic feet of low-level radioactive wastes, high-level wastes now held in dozens of locations around our country, and abandoned radioactive facilities that stand under guard awaiting the Nation's decision to spend almost as much to dispose of them as it did to build them.

With foresight capability our country should be able to do a much better job of choosing life-supporting rather than life-threatening paths into the future.

I believe that our Government is on the wrong path right now. This is especially true of the Environmental Protection Agency, which some skeptics are calling the "Environmental Polluters' Agency". We need to get the EPA back on track—in dealing responsibly with toxic wastes and the whole range of environmental problems it is supposed to be addressing.

This discussion really revolves around two simple questions.

Will we leave future generations a poisoned, wasted earth as the deferred cost of this generation's shortsightedness?

Or will we pass on to them a healthy, bountiful, beautiful earth—the lasting returns from the wise investments of today?

These choices are now before us.

Mrs. SCHNEIDER. I would like to begin with a question, picking up on your comment that there had been a forward movement in the improvement of the toxic waste situation nationwide. We are now in a situation where we have experienced the Love Canals of the toxic waste syndrome, but now there seems to be a different climate that exists among the populace which says let us clean up the hazardous waste dumpsites and focus on how we can prevent future dumpsites. Can you elaborate on what you perceive as being the impetus that has led to this change of attitude?

Mr. PETERSON. I think the Reagan administration espouses a philosophy opposed to what needs to be done here, almost an ideology that says that these regulations we are talking about are harmful to our economy, when the facts do not support that at all. In fact, as I said in my prepared testimony, our environmental regulations have done much more to stimulate the economy, provide investment opportunities and jobs than have been lost. I challenge anybody to come forth with data to support the contrary in spite of the fact it is repeatedly stated that environmental regulations are detrimental to our economy.

We have developed a whole industry based upon producing cool air. I never heard anybody question whether the air conditioning industry is helpful to our economy or not, a tremendous production of air conditioners to produce cool air to make us more comfortable, obviously produce more jobs, investment opportunities, adds to the GNP, all of the things generally considered to be helpful to an economy. But now when we want to produce clean air to make us more healthy, there is a big question about investing money to do that.

The catalytic converter is a good example. It is a great success story in the free enterprise system. If we wanted to cut down costs we could cut out air conditioners, too. Why is all the emphasis on the cutting out of means of producing clean air? The same logic applies in many other areas involved in the environment. Now, Congress has, as you so well know—in fact some of you here have played a key role in it—done such things as get the Resource Conservation and Recovery Act of 1976 passed, the Superfund bill passed. The framework has been established. We are doing something with this critical problem we are focusing on here today—not in the nuclear area, but in other areas. But EPA needs people to do the job. When I headed the Council on Air Quality and worked with Russ Train, head of the Environmental Protection Agency, he used to cry on my shoulder about the impossible task that Congress had given EPA without giving them the resources to do the job. In recent years Congress has added new chores which in the judgment of many people doubled the workload without giving them the resources to do the job. In comes a new administration and proposes markedly cutting it. I say to the Congress, get EPA back on the track the way you were going and give the EPA people the resources to do the job.

Mrs. **Schneider**. As a leader of the national citizens' organization that focuses on concerns of the environment, the role of the public and the role of your membership is one which I would like you to perhaps articulate further. What type of leadership, what type of suggestions are you providing to the grassroots so that they might better perceive the criticality of toxic waste? I think that we have a real problem of perception here. Everyone says: "I do not want a dumpsite in my backyard," but on the other hand when we talk about resource recovery facilities, the public is also saying that we do not want a resource recovery facility in our backyard. If we are going to live with the social amenities of synthetic fibers and cleaning fluids and the things chemicals are used for, we have to know how to deal with those wastes and be able to accept them in a proper state in our backyard. Could you elaborate on what kind of efforts you are involved in to try to improve the public perception of accepting this kind of solution?

Mr. **Peterson**. I certainly agree that we need a major effort to educate the general public about this complex problem, but in many respects the public is ahead of the leaders. Certainly when you look at the polls of what people think about the Clean Air Act and the Clean Water Act and they say they are willing to spend more tax dollars and more market dollars to assure they have clean air and clean water, even in times of great concern about the economy. This is a pretty good indication that people are determined to do something about these problems. In fact, as you know, when Louis Harris appeared before one of your committees of Congress recently, he said that in all his 25 years of polling, he never found such an overwhelming support of the people for any issue as they are expressing right now for cleaning up the air and the water.

The real power in our country is with the people, and we in Audubon have 450,000 members. We are doing our best to keep our members informed of these complicated issues, and so we are putting out for their benefit letters about the hazardous waste problem, about the needs for us to face up, as you said, to finding some solution to the problem. You cannot just be opposed to dumping the waste certain places and then not be supportive of a solution to the problem. You cannot be against things without having an alternate to it. That is what we firmly keep preaching.

We like to brag about being a voice of reason. I am a chemist by training and spent 26 years running research divisions for Du Pont company and have great experience in many of these areas we are talking about here today. I cite that not to brag but to give you some background about how my convictions have arisen. And I believe if we could get through to the people that having these dangerous chemicals spread all over the landscape, gradually seeping down toward such vital things as drinking water, and contrast that with bringing it to a given location under carefully controlled management of those resources, we could not only extract from those wastes valuable materials, but we could dispose of the remaining residue in a much safer way, much to the advantage of people living in any community.

Today they do not accept that idea because if one of these new disposal facilities were put in their backyard, they would raise hell about it as you know. But somehow we have to teach people that that is to their advantage. You do not have to put it in the middle of the city. You can put it in some other place, which would be a great plus. We need hundreds of these around the country. We cannot put them in one State and have all the rest of the States funnel their wastes there. So we in Audubon are trying to teach our members and as many others as we can how vital it is to support such projects, as we are now doing with one site in Illinois.

Mrs. **Schneider**. Thank you very much. Since we are going to attempt to adhere to the 5-minute rule, I will call on Congressman Brown to continue.

Mr. **Brown**. Let me ask just one question, Mr. Peterson. You have expressed a view, and it is one that I thoroughly concur in, that the present trend toward a reduction in research and development for environmental matters is a serious problem. But I ask you to reverse your role for a moment and I will try and reverse mine to see the other side of the coin. For example, we have had more than adequate budgets and we have had extensive experience in the problems of nuclear and radioactive waste. The production of nuclear materials has been almost a Government monopoly. The nuclear power industry has been carefully nurtured by the Government. It generates a considerable amount of waste, but 90 percent of the wastes are generated by the Government itself through its weapons program, and we still have not solved the problem of nuclear waste.

In other words, is it possible that this administration is correct in its assertion that spending a lot of money on the problems of toxic chemical waste is not necessarily going to solve the problem, as it has not with nuclear waste? Is there some other solution that we should be looking for here that we have not gotten the magic key to yet?

Mr. **Peterson**. I think that one alternative is not to produce the waste in the first place. I will put nuclear aside for a minute and focus on the other kind of waste. If we can get the manufacturers of the waste to have to pay all the costs of dealing with that waste, they are going to stop producing that waste. They will markedly increase the efficiency of their operation so they produce less waste. They will recover the part of that waste which has a marketable value, and they will dispose of the remainder in some more economic manner. If the prices of many of these things we are now using, which incur tremendous costs for handling waste, rose to the point where we could not afford, and they would probably disappear from the marketplace. Many things for which we pay a small price do not include the total cost we ought to be paying to cover the disposal of the waste.

Mr. **Brown**. That is a marketing approach, let the cost fall where it should fall and the situation will take care of itself.

Mr. **Peterson**. The market never would face up to that without Government providing the incentive to do it. I appeared on the PBS-TV series "Free To Choose" with Milton Friedman to discuss the free enterprise system. The one point where he agreed during the broadcast was that when it comes to such things as protecting the environment, the market will not work and you must have Government regulations to do it.

Back when I was responsible for getting Du Pont into new fields, we would try to dream up what people were going to need in the next 10, 20 years, so we could invent something to fill that need. We were not smart enough to think that people were going to want clean air, but scientists such as those at Engelhard Industries in New Jersey were. They went to Detroit and tried to pursuade the automobile manufacturers to put platinum catalysts in the exhaust of automobiles to stop polluting the air. They could not sell that idea. Then the Members of Congress passed the Clean Air Act unanimously, and overnight there was a market for clean air. Detroit went to Engelhard Industries and said, "how about that development of yours," and the net result is Engelhard is making a lot of money producing platinum catalysts; Corning is producing the aluminum oxide substrate in which to put the catalyst; and it is one of the biggest markets in the country for stainless steel. It is a tremendous success story, but it never would have happened without the Government making it happen. And so it goes with disposal of these wastes. By Government enacting legislation, it puts pressure on the market so it will solve its objective of making the maximum return today that it can.

Mr. **Brown**. Thank you.

Mrs. **Schneider**. Mr. Carney?

Mr. **Carney**. Thank you very much. I appreciate your testimony, Dr. Peterson. Do you see any limits or guidelines for the EPA in terms of its direct activity with cleaning up toxic waste sites? Could you give me your opinion as to what role they should play? Should they be an overseer? Should they provide the manpower or technology? What do you see as their direct role in the problem of cleaning up identified waste sites?

Mr. **Peterson**. I think there are three principal actors in this thing—the Federal Government, the State government, and industry, the entity creating the waste to begin with. And I see nothing less than a major role for Government, Federal Government. I cannot imagine this problem being resolved by being left to the States alone. And first of all, it is obviously an interstate problem.

Companies often generate the waste in one place and transport it to other States—we talked this morning about the dump here in Rhode Island that is now in the process of being cleaned up. It contains waste that came from many other States. Waste is being transported to landfills in other States.

It is clearly an interstate problem, and therefore the responsibility of the Federal Government. If each State was left to do its thing, some States as has been typical throughout history would not do the job worth a damn, and they would try to attract businesses to their area, bragging about the fact that a company can get by in their States with less cost, inviting industry to come and discharge your wastes in the State. With lower costs attracting them, industry would move in that direction, only to create a more serious and costly problem for that State and for the country in years to come. Regulation of toxic waste disposal has to be done across the board.

The Federal Government does not have the resources to do it alone, nor do the States have it. The bulk of this cost, in my judgment, has to come in the marketplace, and that is why the Superfund bill, which collects this money from a tax on industry, is a good one, because the only way they can pay those taxes is to put the cost in the selling price of the articles they are producing. So EPA now, in my judgment, has the job to implement the Resource Conservation and Recovery Act which is a good one. The Superfund legislation is a good start, and I think EPA ought to be given the assignment and the resources to do that job in the spirit in which the bill was drafted.

Mr. CARNEY. Are you saying then that EPA should promulgate the regulations and see to it that they are enforced and that the local government perhaps should supply the manpower and equipment to go through the process of cleaning up a hazardous waste site? Should the costs also be shared by those who have created the problem, the industry?

Mr. PETERSON. Yes.

Mr. CARNEY. Would that be a fair assumption?

Mr. PETERSON. Yes, but the Federal Government ought to be authorized, as it is, to move into certain sites and put up the money to get the thing cleaned up if other people do not take care of it, having authority to get those people to pick up the tab when they find out who is responsible for it. Where a State is willing to do that, it is not necessary for the Federal Government to do it. Cooperative agreements are provided for.

Mr. CARNEY. With RCRA and Superfund then, we would have the ability to do that, should we not?

Mr. PETERSON. Yes.

Mr. CARNEY. Considering the fact that the responsibility of this committee is research and development for EPA, NOAA, and other agencies dealing with the environment, it is far too easy for us as Members of Congress and for witnesses to go to the aspect of creating legislation. Our responsibility is not to create the legislation. That is the responsibility of the Commerce Committee. Our responsibility is to see to it that the Federal Government has the research and development structure so we can give the tools to people to do that.

Could you, with your vast experience in industry and the expertise that you bring to us, give us any kind of direction that you think we should be going in within the limits of research and development?

There is the question of patience. Should we run in and clean up the dumpsite, or should we carefully monitor the procedures, doing research while we are doing it at this point in the embryonic stage of the development of the solution that we are trying to create? If you could give us an overview of that, I would appreciate it.

Mr. **Peterson**. I would listen to the research people in EPA as to what they need. Do not believe this bunk about a bunch of bureaucrats in Washington not knowing what they are doing and wasting the taxpayer's dollar. I have run large groups in industry and State government and Federal Government, and I will stack up the dedication and the competence and the effectiveness of the employees of EPA research and development with any group in industry. So do not buy that propaganda that they are a bunch of ineffective bureaucrats. Listen to what they need and give them the resources. Back them up. And you will find they really need a hell of a lot when they get out from under the restraints of their current management and speak freely.

Mr. **Carney**. This committee has advocated the EPA R. & D. program and we know the frustrations that they have to work with, being that much of this is very time-consuming and we cannot get the answers until one or two generations pass with some of the studies. I have to compliment you for the work that you are trying to do to educate the people.

Mr. **Peterson**. Let me answer your question. I think it is also important for EPA to have the funds to make grants to universities to work in this field. There's testimony coming up here today by Dr. Lowrance which includes an excellent analysis of the tremendous lack of information we have in determining the full effects of these very hazardous chemicals.

And EPA needs a great deal of help. We need other centers of intellectual activity besides one. So many universities can contribute, industry can contribute, and it is contributing. Under the pressure of the times they have markedly expanded their resources to dig into these problems, and we need a more harmonious working together on these problems between Government, universities, and industry. The sum of their efforts can be tremendous, particularly if they are listening to each other and learning from each other. The current climate is one of great suspicion that discourages that.

I understand the plans right now are to markedly reduce the budget available for research—it has not been implemented yet, and you people in Congress can stop it I think—but the plans are for a major cut in the dollars that are being spent on research. And virtually all university and private research work funded by EPA will end abruptly over the next 14 months if the proposed budget plans are carried out. And roughly eight EPA labs will close. So you obviously have a major assignment to make the laws of the land work by giving the people who are asked to implement those laws the tools to do the job.

Mr. **Carney**. I yield back to the chair.

Mrs. SCHNEIDER. I will call now on Congressman Fish, and I would like to ask unanimous consent that we might have the agreement to submit additional questions to the record, and Dr. Peterson, because your testimony is so very interesting, I would appreciate it if you would be willing to answer these questions in writing due to the fact that we have time constraints today.

Mr. PETERSON. I will be pleased to do so.

Mrs. SCHNEIDER. Congressman Fish.

Mr. FISH. Governor, you have reminded us that the Congress has put in place the Resource Conservation and Recovery Act and the Superfund, and that we have continually, ever since the formation of EPA, been adding to its responsibilities. We face today particularly tough decisions on allocation of resources in the Congress. I notice in your testimony, however, you use the phrase "discriminatory budget cutting," and I wonder if you care to elaborate on that.

Mr. PETERSON. Yes, I would be pleased to. It is obvious that there come times when we need to go back and look at what we are doing with our money and cut out some ineffective ways we are spending money. That ought to apply across the board. But one agency--EPA—is being hit with a huge cut—cutting it in half is the plan. For example, the OMB's fiscal year 1983 budget which you are going to be wrestling with here shortly, the proposal as of November 10, and Mrs. Gorsuch's proposal as of September 14, are pretty much the same, but let us take the OMB proposal; it seems to have prevailed so many times in recent months.

They talk about giving EPA in real dollars, in order to wipe out the impact of inflation, only 46 percent as many dollars as they had in the year just ended on September 30. And that is discriminatory cutting. And it reflects an antienvironmental attitude, as far as I can see, all across the board; this is just one of those examples. And in the environmental area where the real costs to the country are going to be tremendous, we do not face up to this. We may fool ourselves by looking at the books of the marketplace and think we are having a prosperous economy, but when we look at the books of nature we see they are running a deficit year after year.

Mr. FISH. You referred to a Global Tomorrow Coalition, awareness of global trends that threaten our life support system and to promote Government action, and from this group came a proposal for a permanent governmental mechanism to help us plan ahead. Could you describe whether you are talking about a Cabinet-level executive group, something comparable to OTA or CRS, or something legislative?

Mr. PETERSON. I am thinking about a number of things. The first entity and the one most urgently needed is in the executive branch. If you do not have a group reporting in to the President, the key decisionmaker will not pay attention to it and take the time to study. You need an institution that is permanent to make these long-range studies, look ahead to see which way we are going so we can change the trends if it looks as though we are heading in the wrong direction. And that group ought to be in the executive branch.

There ought to be, in addition to that, a body made up primarily of people outside the Government but with a few in Government so it is tied to Congress, with the leadership, the chairman and so on, coming from outside so it is free of the normal political pressures that are brought to bear. It can on an ongoing basis provide that trend information.

I was head of the Office of Technology Assessment, worked for you people in the Congress. In fact, Congressman George Brown was one of my direct bosses. And when that agency was originally conceived they had a much better plan than they ended up with. The plan was to have OTA run by a board made up predominantly of people from outside the Government, but including two Senators and two Congressmen, one from each party. That would have been much better than the current setup. OTA does not make major contributions to Congress today to get Congress to pay attention to the long-term issues presented. It would be better to have an outside group, not just for one report but as an ongoing function to look to the future.

Nearly all of our decisions in our society are made with the near-term focus; in the business world, "How much can we make this year?" and in Government, "How do we get reelected next election?" We need that longer term view with a comprehensive look at the interaction of the forces at work and with a global perspective as well. Whether we like it or not all of us on the planet Earth are tied together, and what happens is vital to you and our grandchildren.

We need to look at those issues, and you people in the decisionmaking process rarely do that, with a few exceptions. We have to set up the means to steal some of your time. I do not mean to be lecturing you. All of us do this. It is human nature to focus on near-term considerations rather than on long-term considerations. We are more inclined to consider the longer term when thinking about our family. We worry about our own kids 50 years in the future, their health, education, when they get married and so on, but when it comes to the other aspects of life we focus on the near term. You have this impossible kind of assignment working with every problem in the world. And only have 24 hours a day.

In addition to solving all those problems, you have to get reelected, so it is hard to find the time to worry about 10-, 20-, 30-year impacts. If you had a mechanism set up to steal some of your time to make you face up to long-term objectives, you could bring that to bear on decisionmaking.

Mr. **Fish**. Thank you.

Mrs. **Schneider**. Mr. Weber.

Mr. **Weber**. I will build on Mr. Fish's question. Some of the newer members have some suspicion of new Government agencies. Although I understand the point you just made, is there not some truth to the statement that much of the problem we have is not that there is an absence of trend analysis, but there is a difference of opinion on how you interpret that trend analysis? You made reference to the Global 2000 report, which I am familiar with, and I dug my way through day after day after day. But many prominent futurologists or whatever you want to call them dispute that vigorously. Max Singer, Dr. Kahn, Julian Simon's new book out, come to different conclusions. If you institutionalize an agency of Government and give it responsibility for doing long-term trend analysis on which to base Government policies, are you not saying we are going to give an official status to whatever point of view happens to occupy the White House or the Congress at that point in time? President Reagan, if he inherited such an agency when he came in, could appoint Herman Kahn to head it, and they would produce studies to contradict the views of Global 2000. Are we not better off in some regard having that removed from the political process at least one step?

Mr. **Peterson**. As I said earlier, I think we need both in the executive branch, because I do not think the President or a Member of Congress for that matter would pay as much attention to an outside group as they would to one with which they are directly involved. Regardless of Herman Kahn or Julian Simon or President Reagan's foresight group, they would be bringing the questions to the forefront, and others would be sniping at them, so the President would be forced to think about these issues. As it is today, I doubt very much whether he is thinking about that.

Mr. **Weber**. You think the benefits of institutionalizing that would outweigh demerits from politicizing it?

Mr. **Peterson**. Absolutely, provided you had a group of people not under the arm of somebody that had a political ideology they wanted to further, but rather a group of people from society who are really running that operation. But to sit down and look at the long-term future is something that is rarely done in Government, and I believe—one of the reasons why the Global 2000 causes so much discussion is because it is such an unusual subject that we brought up. If we were doing that sort of thing regularly we would not have such newsworthy confrontations. You mentioned Herman Kahn and Julian Simon. They are a very small minority, by the way, relative to the broad community which has looked at that problem.

Mr. **Weber**. Thank you.

Mr. **Carney**. Would the gentleman yield?

Mr. **Weber**. Yes.

Mr. **Carney**. Along those lines, I was thinking, as Mr. Weber said, that you could get yourself into trouble by setting up a panel like that. That panel could do what Mr. Weber pointed out. I look back to the Congress thinking about Lou Harris. If there is anybody that is very moved by a policy it is a Member of Congress if he/she wants to stay here long. Looking at the record in the last 10 years, we have the Clean Air Act, Resource Conservation and Recovery Act, Public Health Service Act for Radiation, Toxic Substance Act, et cetera. I think the Congress has reacted to the problems at hand, to the best of our ability with the limited knowledge and money that we have. I do not think that we have abrogated our responsibility in that respect. In the last 10 years we have done a terrific job. Maybe we cannot forecast 20 or 30 years, but in the last 10 years we have reacted to the wants of the people, as Lou Harris pointed out. I would like to keep it there, because as long as the people keep the pressure on us, we will have to move to clean the total environment.

Mr. **Peterson**. I tried to say that earlier. There has been tremendous progress in a 10-year period. The people wanted it and made it happen and Congress responded. So do State and city governments. Fantastic change. Industry hired tens of thousands of environmentalists who in turn helped to teach the bosses. Environmental leaders and industry started to work together. We had a tremendous movement. But all of a sudden there is an attempt to change that in a major way, and an extreme radical kind of change, but the polls say that people want to keep the environmental improvement going, and therefore it is going to keep going. There may be interruptions, but the people will demand that it keep going.

Mr. CARNEY. The people will get their wish if it stays in control of the Congress and not one administration to the next. That is my point.

Mrs. SCHNEIDER. We have eight more witnesses that are going to testify. I would like Congressman Gregg to have the opportunity to speak to Mr. Peterson.

Mr. GREGG. In the interest of time I will be brief, although there are many questions I would like to ask Dr. Peterson. I congratulate the society for their aggressive attitude in the area of public health especially, and hope that they will be working with us on the Clean Air Act; I know that they will, especially on the issue of acid rain. Perhaps we will have time to talk in the future.

Mrs. SCHNEIDER. Thank you. We have initiated a framework on the national scene as to the economics and public concern about this issue. Now we shall focus on the hazardous waste health issues. I would like to call on Dr. William Lowrance, senior fellow and director of the Life Sciences and Public Policy Program of The Rockefeller University, who has come from New York. I notice in your testimony that you will go further in introducing yourself and expounding on your credentials. Welcome.

STATEMENT OF DR. WILLIAM W. LOWRANCE, SENIOR FELLOW AND DIRECTOR, LIFE SCIENCES AND PUBLIC POLICY PROGRAM, THE ROCKEFELLER UNIVERSITY, NEW YORK, N.Y.

Dr. LOWRANCE. I am glad to have a chance to speak to these issues today. I am William Lowrance, an organic chemist and biochemist by training. I have taught and done research at Harvard and Stanford Universities and have written a book called "Of Acceptable Risk", dealing with a wide variety of hazard management situations in society.

I recently returned to the Rockefeller University to start a Life Sciences and Public Policy Program. One of our first issues was that of health studies at toxic waste sites, because we were convinced that there was a need for more work. We thought perhaps we could call on some of our scientific colleagues to help give direction to the many projects going on around the country.

The toxic waste issue is immature. I would like briefly to describe what I see that problem as being about, to speak to the health studies that are currently being done and the problems of conducting those studies, and to make a few recommendations.

We have already heard that there are hundreds, maybe thousands of waste sites in the United States, and we know that many of them do contain proven hazardous materials. The first conceptual problem is, What is a hazardous waste dump? That can range from just a plot of ground out in the country not labeled in any way—there are, I understand, some not far from here which have served as repositories for unprocessed liquid waste—to those that are carefully constructed within the boundaries of industrial facilities, monitored and carefully followed through the years.

It is not true that large dumpsites are the only problem. Sometimes a small one, if near a population center or having particularly dangerous chemicals in it, can present more hazard than one that is visible or that has a bad smell. Intuition goes out the window when you try to rank sites. Human health effects depend on such factors as how many people live near the site and what the integrity of containment is.

The principal route of exposure for human beings seems to be through water, but it can also occur through food, through the air, or through other media. It seems to me that one has to begin by recognizing that all dumpsite situations are different. The chemicals are bound to be different. Over time they change as chemicals decay, change form, and so on. Migration from a dump will be different for different sites. Population exposure will differ. So although from time to time you can draw a generalization between sites, one of the difficulties in this area is that every waste site should be presumed to be different in its health effects. This is also true of the nonhuman environmental effects.

We know that toxic wastes can migrate substantially. We have seen examples of wastes that can migrate many hundreds and maybe even thousands of feet per year underground. There can be a delayed effect, in that it takes years, maybe decades, for chemicals to get down to ground water. Fifteen feet down or 300 feet down, 1 day it starts moving quickly and getting into well water. So the fact that chemicals have been dumped for years without effect and do not show up in ground water does not mean that there will not be a problem in the future.

The political difficulty is that this is an intensely local problem. This is something municipal governments are confronting now. People see it. It is one thing to talk about strategic arms issues and welfare reform, but those issues seem vague. Toxic waste issues are seen as only being intensive local. Yet particularly since wastes can migrate physically and because corporations ship waste all over, it is an issue not solely amenable to local control.

The next point of perspective is that the chemicals seeping out of chemical waste dumps are only one of the contributors to our national pollution problem. Surface and agricultural runoff are problems, as are storm-drain overflow and many other source cases. The reason we are most concerned about toxic waste disposal sites is because of their effects on human health through contamination of drinking water. If a toxic waste dump only contributes 5 percent of the serious pollution in an area, perhaps one should spend resources on reducing municipal runoff or other sources. That is the real problem for social management analysis.

What have we learned so far about health effects at toxic waste sites? A number of sites have been actively investigated. The ones most read about, such as Love Canal, are not necessarily the ones best studied. This is not a new issue. Industry has studied toxic waste problems for decades. Many plants have toxic waste sites within their boundaries and have every reason to try to clean them up and study health effects in the neighborhood and to their workers.

Over the last few months I have asked a great number of health experts, State health commissioners, and so on, whether they could document cases of actual health damage from low-level exposure to chemicals from waste dumps. The answer is that there are some documented cases, but not nearly as many as one might imagine.

In a sense I have defined the problem away by talking about low-level exposure. There are a few dumps full of such things as arsenic that has leaked into ground water from which people in the area have indeed suffered nerve damage or other health impairment. Other than that, we are still searching for convincing proof of health damage. I think the group that is most exposed is workers at toxic waste sites, and I think we ought to give every effort to monitoring their health, because they are, for better or worse, "miners' canaries" for society.

It seems to me one should expect some health effects over the long run from escaping waste; we have to look toward those. Health effects from toxic waste are not going to be different from those we suffer from other causes. The cancer induced by toxic waste will resemble cancer induced from smoking, diet, or genetic problems. Any illnesses will tend to remain chronic and will probably escape doctors' attention unless those physicians look for a specific kind of health impairment, and even then it is hard to detect.

Control populations will be hard to designate. If you wanted to compare people living near the Picillo site to a control population, what community would you turn to? Would you go to southern California? Certainly not. Would you go to New York? Yes, but maybe the ethnic mixture or age are different. We all have bad habits, we smoke and do all sorts of things to our body, so it is hard to define "normal". We would like to find "normal" chromosomes, but I defy you to do so. We would like to look for impairment of human reproduction, but it appears that up to 40 percent of all pregnancies are terminated spontaneously. We do not know what that number is; we often do not know because spontaneous abortion can occur in the first month or 6 weeks, when pregnancy is not confirmed. And the matter remains sensitive and private. How do we show that it is toxic waste exposure that caused the spontaneous abortion?

We have three basic scientific avenues for investigating these problems: toxicology, epidemiology, and investigative medicine. This committee of course is familiar with the approach of toxicology. We study the compound or compounds in every way we can on animals, bacteria, or plants, in controlled situations if possible, and try then to extrapolate to human beings. Unfortunately, humans are not white mice and never will be. We do not know what chemicals are in many dumps. Often the mixture is the sort of thing that makes chemical analysts throw up their hands. After analyzing for the first 100 or 500 compounds, there are still minor constituents left, and those may be the ones threatening people's health.

The second approach is epidemiology. We have seen examples in trying to prove correlation, for instance, between smoking and cancer. That is the best known epidemiological survey. Another is in the area of radiation, showing that exposure to radiation causes specific health damage. People live near a dump for a few years and they move away. Some people are older, some are younger. There are people that might be particularly susceptible to liver damage, while others are invulnerable to that particular attack. So it is very hard to develop epidemiological correlations.

The third approach is investigative medicine. I have been surprised by the reluctance of the medical community to get involved in these issues, but I sympathize. Some professors of medicine have refused to go to Love Canal to survey the health of the local citizens because they know that if they survey a thousand people's health, they will find previously undiagnosed health problems. They may even be able to find a pattern of some kind if they try hard enough. But physicians do not know how to report those findings to public health authorities, particularly in light of the lawsuits that can follow. That reluctance is inherent in the physician-patient one-to-one relationship and in the art of medicine as it now is practiced.

So we pursue all three lines of investigation and hope that they reinforce each other and that we can see some patterns. A lot of health studies are being conducted around the country. Industry is leading with a great range of studies of their own employees and of people in the neighborhoods where problems are suspected. Conferences have been held recently by organizations ranging from the March of Dimes, to the National Institute of Environmental Health Sciences, the Enivornmental Protection Agency, and other organizations, including my university. A wide range of Federal agencies are involved. EPA does have a lead role, but the National Institute for Environmental Health Sciences, the National Institute for Occupational Safety and Health, and even the Coast Guard and other Federal agencies have strong responsibility.

One of the problems that needs to be sorted out now is the jurisdictional overlap between Health and Human Services, the Center for Disease Control in HHS, and the Environmental Protection Agency. This issue has not been resolved, as I understand it, under Superfund.

What are the Federal roles? First, I think we must turn to the Federal Government for setting of priorities, for help in deciding where we are going to put our first cleanup efforts. We have now seen the EPA's 114- or 115-site "hit list". At least it is something for us to discuss, and the other sites can be put in line as time goes on. Of course, a lot of these issues cut across State lines. There are a lot of firms operating in many States who simply truck their waste around to avoid hotspot problems. It is a classic Federal role to cut across State jurisdictions.

Second, I think the Federal Government should exercise more sophisticated leadership in research and development. Many things can be done. A good bit of work is already under way, and I believe committees such as this one can help protect the priorities of the Federal agencies and encourage a coordinating role. I do not like the word "coordination," but it is a necessary one. Work has been done by a lot of State agencies, by other governments, such as the Government of Canada and the Government of Sweden, and by international and multinational bodies such as the Organization for Economic Cooperation and Development. The EPA should be encouraged to work with these organizations more fully.

The legislative mandate is basically in place for Federal activity. The need is for implementation. Part of the problem comes down to money. Federal agencies need money to work. They need guidance so they will not be turned upside down in a year or two on priorities. A lot depends on the recruitment of very able people and provision of a good place for them to work, so that sophisticated talent can be brought onto the scene.

I think it is important to recognize another aspect of perspective here. As I said earlier, the toxic waste problem is only one of the contributions to pollution and therefore to our health concern. So it seems to me that if we continue to deal with the toxic waste dump problem as an exotic issue, treat it only in and of itself, we are going to miss the point. We have to work on toxic waste dumps, but at the same time we have to examine water quality. If Representative Carney is concerned about, for example the quality of the very large and fairly clean aquifer, on Long Island, he should be concerned about cleaning up toxic waste dumps on Long Island. But if he only looks at the dumps, he will miss the larger problem and will not be able to make a long-term plan for protecting his district's water supply.

There seems to be an American propensity to jump out of the frying pan into the fire. We solve one problem only to create another one. I am worried that as a number of firms and city governments recognize that landfills are a problem and that deep wells are not necessarily an answer for the ultimate disposal of toxic waste, they will turn to techniques like incineration. That that gives in to the intuition that if you burn things they go away. But, if you are burning millions of gallons of toxic chemicals, a lot of them go away, but a lot can be turned into vapor and transported in the atmosphere.

A role for this committee is to watch the flanks and insure that as authorities switch from landfills and turn to recycling, and recovery, and pretreatment before incineration, that they do not just transform one hazardous problem into another.

[The prepared statement of Dr. Lowrance follows:]

ASSESSMENT OF HEALTH EFFECTS AT CHEMICAL DISPOSAL SITES

Testimony of

William W. Lowrance

To introduce myself, I am William W. Lowrance. After doctoral education in organic and biological chemistry, I served as a senior research chemist for Tennessee Eastman Company. Over recent years I have moved full-time into science policy studies, teaching and conducting research at Harvard and Stanford Universities. In 1976 I published a book, Of Acceptable Risk: Science and the Determintion of Safety, and I continue to study issues of public health risk. Currently I am a senior fellow and the director of the Life Sciences and Public Policy Program at The Rockefeller University in New York City. In June our Program held a symposium on the assessment of health effects at chemical disposal sites, which gave me an opportunity to review the topic of today's hearing.

That topic is a mess: the chemical waste issue is still quite immature, both scientifically and politically.

In my testimony I will briefly decribe the physical situation, review progress in health assessment, and conclude with several policy recommendations.

What is the physical situation? By all counts, there are thousands of chemical waste disposal sites in the United States. Many of them definitely contain known or presumed hazardous materials.

Dumps range in quality from piles of corroding drums abandoned through several changes of site ownership, to carefully constructed, lined, covered, fenced in, and monitored basins.

Some dumps may contain tens or hundreds of different major chemicals and literally countless minor ones, including decay products. Large old dumpsites usually are a hodge-podge of different chemicals laid down over decades. While some large dumps may be secure and benign, some smaller dumps may be quite troublesome.

Naturally, human health effects depend on the nature of the dumped materials, the integrity of containment, and the way underlying hydrogeology and surrounding settlement allow human exposure. The principal route of human exposure to disposed chemicals is usually assumed to be through groundwater. But it is clear that surface water and air do carry chemicals from some dumps. Because of these crucial differences, all waste dumps should be assumed to be different.

Although analogies can be drawn among wastesites, chemical, geological, or medical generalizations not based on detailed site-specific analyses must always be considered unreliable.

Wastes that escape into groundwater can migrate. Thus the waste-management issue may not always be fully susceptible to local political control. Few social issues, however, are more intensely localized. Thus although federal policies are very important, it should be recognized that in the long run, industries and municipal and state governments must play leading roles in solving these problems.

Obviously, chemicals seeping from waste dumps are only one contribution to the nation's air and water pollution burdens. Substantial -- in many cases predominant -- contamination also comes from surface pollution, industrial and municipal discharge, incineration, holding-pond evaporation, septic tank leakage, storm-drain overflow, agricultural runoff, marine spills, and other sources.

What have we learned so far about health damage from disposed waste? Quite a few sites are actively under investigation. Over recent months I have discussed this issue with many experts, and have repeatedly asked them whether they could confirm any cases of health impairment. The answer has been that health damage has been verified only in a very few unusual cases, involving rather high exposure (as, for instance, a case in which arsenic seeped into backyard wells, causing nerve damage). It may be, as David Snapp will discuss, that some industrial or municipal workers have incurred harm in handling waste. But I am not yet aware

-- and I have tried to find cases -- of medical evidence of harm from what I would describe as routine exposure of citizens to traces of fugitive chemicals in drinking water, food, or air. This is not to say that over the long run people will not be harmed; rather, we just don't know yet. I suspect that relative to all the other hazards we are exposed to, the disease burden from waste chemicals will not turn out to be very high.

No question about it, though: because of their potential health hazard, non-human environmental hazard, degradation of natural resources, and economic wastage, the nation's chemical disposal problems demand sustained high-level attention.

What is the current status of health studies? Not only do we not know how severe human health effects are from disposed chemicals, we are still far from being able to agree on how best to go about assessing those risks. Apart from obvious cases of outright poisoning, such as from children's playing on an uncovered waste-heap, any health effects incurred will most likely be subtle and hard to detect. They will tend to be chronic and may remain subclinical (undetected by routine self or physician examination), possibly through long latent periods. Illnesses that do arise from chemical exposure can be expected usually to resemble or be identical with "background" health problems, such as cancer or miscarriage. Comparing test populations with "control" or normal populations is the essence of health assessments. But since everyone is exposed to low levels of chemicals from air, diet, smoking, medication, and so on, and because people vary so much, reference populations are hard to define. So is normalcy: it may be impossible to define "normal" chromosome or "average" sperm count in a way so standardized that test results can be graded without complex interpretation.

Deep conceptual controversy now surrounds the intersection of the three main health-sciences disciplines available for analyzing these problems: toxicology, epidemiology, and investigative medicine.

Toxicological estimates from animal studies, human metabolic studies, and so on must be used to "model" the kind and extent of human health effects that can be expected. But these estimates are uncertain because of inherent analytical weaknesses, because people are not rodents, and because comprehensive toxicological studies of the complex mixtures and sporadic exposures encountered at wastesites have not been performed. These assays are expensive. And even when they are performed, they resist being generalized between sites.

Epidemiological surveys (that is, health-statistics investigations) can search directly for patterns of health damage. But because of confounding factors, uncertainties over past exposure, and lack of detailed health-status databases, and because of the heterogeneity in makeup, exposure, and vulnerability of human populations, they have a hard time proving that particular effects have been caused by particular exposures.

Investigative medicine is, with rare exceptions, only able to focus on health problems after they have been detected by other disciplines. Whereas both private and government physicians are anxious to help any individual suspected of suffering health debility, they are reluctant to assume responsibility for subjecting large groups of questionably symptomatic people to broad-spectrum diagnostic examination: inevitably some examinees would turn out to have previously undetected medical problems, effects might well not be relatable to causes, comparison with control populations might be impossible, and, knowing that massive remedial and legal actions could be precipitated, doctors would find it difficult to know how to report their tenuous findings to industrial or public authorities.

Therefore, of course, we pursue all three lines of investigation and hope they reinforce each other.

A wide range of health studies are now being conducted. Industries have been reviewing the integrity of their dumps, checking the health of exposed employees, and participating in regional projects. Conferences have been held by the March of Dimes, the Society for Occupational and Environmental Health, the National Institute for Environmental Health Sciences, and other organizations. State health and environmental agencies are conducting research and assessments, sometimes through extramural contracts. The U.S. Centers for Disease Control in Atlanta are active, as is the U.S. Environmental Protection Agency. In joint projects with labor unions and local authorities, the National Institute of Occupational Safety and Health in Cincinnati is studying threats to waste-handlers' health.

What are the federal policy issues?

First, the federal government must continue to refine national priorities for investigation, assessment, remedial action and planning. The EPA has recently published its 114-site "hit list". Thousands more sites remain unranked. Systems for ranking sites, such as the system Rhode Island has developed, need to be pursued. Once defensible priorities are set, a variety of authorities can contribute to remedy.

Second, the federal government should assume more sophisticated leadership of research and development. An impressive amount of work is already going on around the country; lessons need to be drawn out and shared -- a classic federal role. The Congress, and certainly this Committee, knows the importance of insisting that solid research precede allocation of resources and effort, and precede regulatory guidance. Obviously this is most true in times of fiscal stringency. As I look back at the lackluster science used in the early OSHA and Clean Air programs a decade ago, I regret that we didn't concentrate more critically on that science so as to optimize the long-run social return on investment from the regulatory programs. I fear that we are making exactly the same mistake with chemical waste.

The EPA's poor performance in the waste area has been distressing, and to members of the expert public like myself, it appears to be deteriorating. The basic legislative mandate is in place; implementation is the holdup. The intensity and quality of federal research and coordination is much too low, relative to the national resource commitment it ultimately will affect.

Federal research and technical review are proceeding under a number of laws (Resource Conservation and Recovery Act, Superfund, Clean Water Act) and in several agencies (such as EPA, CDC, NIEHS, NIOSH). Human health studies seem to be indelicately suspended somewhere out in the middle. There will have to be a focal point, and there is not one now. The time is ripe for serious scientific critique of all current and contemplated health (and environmental) studies.

Third, it is crucial that the government integrate the chemical waste problem into its larger programs governing air and water quality and land-use planning. Remedial actions have to be taken soon at some especially troublesome sites, but the overall issue should not continue to be treated as an exotic one. The next phase of policymaking will have to dovetail consideration of these dumpsite sources into the evaluation and societal management of pollution in general, and into land-use planning.

A last federal responsibility is guarding against our national propensity to "jump out of the frying pan and into the fire". As people shy away from land disposal and switch to recycling, incineration, and other waste-treatment measures, federal agencies that have purview over, for instance, air quality, must stay alert so that we don't simply translate our current problems into new ones.

Mrs. SCHNEIDER. Thank you very much. I appreciate your summarizing, because we must finish by 3:15 with you.

You have quite clearly said that we cannot make a judgment about the health risks of hazardous waste, and you have elaborated on the difficulty in finding a normal or a controlled environment from which to conduct studies. But there is no question that we have to begin some kind of study. You are almost a voice in the wilderness, because there are a limited number of people who are drawing direct correlations between various chemical wastes or toxic substances in our environment and the health implications. The bottom line is whether we can afford to wait, and if so, how long must we wait? It seems to me there will never be that ideal controlled environment to establish a solid scientific data base. What do we do in the interim, and how do we get from here to there scientifically?

Mr. LOWRANCE. Certainly we have to take immediate action on a fair number of sites. In this imperfect world we tackle the worst ones first, and that is what the setting of priorities is based on guesstimates of possible health damage. EPA and Health and Human Services are beginning to move on that. So we tackle the worst sites first, where there is a chance of immediate exposure to the waste.

Second, though, we really have to begin to develop the long-term data base, and I mean a rather sophisticated one, and I mean over the decades—not just for dealing with the toxic waste problem, but also with the exposure of veterans to agent orange, and the rest of us to caffeine and to the hundreds of compounds that we worry about in our food and drink and environment.

Mrs. SCHNEIDER. Do we have any form of long-range monitoring of these health effects going on, some type of routine health parameters that can be applicable from one instance to another?

Mr. LOWRANCE. We have some. Improving health records, birth certificates, death certificates. There are surveys now of the constituents of mother's milk in hundreds of hospitals around the United States.

Mrs. SCHNEIDER. Is this initiative being taken on by the medical community or by the State departments of health?

Mr. LOWRANCE. It is a mixture, involving the National Institutes of Health, the Centers for Disease Control, the National Center for Health Statistics, and other agencies. In some cases State agencies are beginning to upgrade things like birth certificates, which right now contain little information of use in analyzing public health problems. There are other studies going on in OSHA and other places that have to do with our ability to understand the effects of chemicals on people, and those again eventually can be brought to bear on a public health emergency of this kind.

My concern is that we do not have critical enough review of these studies. When I have asked experts whether tests like sperm counts were a useful index of harm at a chemical waste site, a few said yes, their agencies were taking sperm samples and trying to see whether counts were low. They found some low counts. Do we not have national studies of sperm counts? The answer is no. It would not be physically impossible, but it is not easy to organize.

Mrs. SCHNEIDER. Thank you very much.

Congressman Brown.

Mr. **Brown**. Dr. Lowrance, on page 4 of your statement you make the statement that you suspect that hazards, the disease burden from waste chemicals will not turn out to be very high, and then you go ahead and describe in fine detail the inadequacies of the health studies that we have, particularly the toxicology and epidemiology. Why could you not have said that the disease burden from waste chemicals will be extremely high, in light of the fact that cancer is the second largest cause of death in this country, and some people have estimated that 80 percent of all cancers are environmentally caused. In view of the lack of information you could just as easily have made the opposite statement.

Mr. **Lowrance**. The question is well put, and the point does appear to be an apparent contradiction. It seems to me that the evidence in hand so far does not demonstrate that there has been high exposure to the chemicals in toxic waste dumps. There are a lot of chemicals, but it is not clear that people have been breathing the chemicals or ingesting them in their water or food. Exposure, I think, has been fairly low. Water quality is pretty high in this country. There are some exceptions, but we have good monitoring of quality of water.

On the other hand, the potential of contamination of the environment, for escaping from the dump and getting into people's systems is high. There is a tremendous volume of chemicals in those dumps. Because I am not convinced that there is high exposure, I do not believe that health damage from the chemical waste dumps has been very high.

Mr. **Brown**. We do not need to confine it just to some artificially defined chemical dump system. Waste chemicals apparently are pervasive in our society, and the so-called cancer maps that were done as a result of some rather inadequately funded epidemiology studies a few years ago showed a tremendous correlation between the location of chemical industries and death from cancer throughout the United States.

Mr. **Lowrance**. That is an issue we have not resolved analytically, but the exposure route there can be to workers. If you do a detailed analysis——

Mr. **Brown**. They are all waste chemicals, chemicals out of place?

Mr. **Lowrance**. The first problem is to get waste chemicals into waste disposal sites rather than in back lots or in streams.

Mr. **Brown**. I will not belabor that. I just point out what seems to me to be a weakness in your statement. It is a statement of faith rather than anything else, it seems to me.

The second question I want to ask you is why, after having spent far more on health, which we have for the last 25 years through the National Institutes, including the Cancer Institute, 100 times over what we have spent on the EPA, we still have such deplorable toxicology and epidemiology? Are we afraid to go after these problems?

Mr. **Lowrance**. In part it is we have not developed a large national system of data keeping. Second, we really do not have a solution as to how to do the science. It is very difficult, as difficult as anything I know of in any of science, and as much as people try to solve the problem of cancer and so on, they simply have not been able to do it. Across the street from my institution is the Sloan-Kettering Cancer Institute. The scientists there work at a very high level, really at the state of the art; yet many of my colleagues there go home in despair in the evening, knowing they have not made much of a contribution to solving the cancer problem.

Mrs. **Schneider**. Mr. Carney?

Mr. **Carney**. Chairman Brown received a note that he had an emergency long-distance phone call. He had to leave. He was not ignoring the witness.

Doctor, you are talking about some sort of broad-based approach that is, let's not just treat each and every symptom. Could you give some list of priority as to how we do that? One thing that comes to my mind, and I mention it for your consideration, is containment. Perhaps that is the first or the immediate priority. Then we can address the R. & D. as to how to take remedial action to the identified spots and what to do to prevent it in the future.

Mr. **Lowrance**. That is the first thing industry is doing. They are putting caps on dumps that seem to be leaking into rainwater or through evaporation. They are sealing dumps that were not well sealed. Those are stopgap measures, and eventually a lot more will have to be done with that waste, but I think that is one of the first things we have to do. We have to figure out what the problems are and rank them. Until we have done that with some conviction, we are not going to know where to take our steps.

Mr. **Carney**. What can we do now without getting into the same problem we had in 1971 with the Clean Air Act? We said to raise the stacks in order to get rid of the problem in the Ohio Valley. They did, and now it is in the Adirondacks, Maine, Rhode Island, and other places. You are saying let us contain the problem now——

Mr. **Lowrance**. The first thing we have to do operationally is forestall human exposure to the chemicals. The chemicals are in the dumps, but they do not cause health effects unless they get into people's bodies. If we find that drinking water is contaminated, as we have found in some cases, we should take action either under the current waste statutes or the drinking water statutes, and substitute drinking water supplies, divert streams, cleanup aquifers, build sills or take other measures to keep water from migrating. Putting a fence around the site may be the first step, in some cases, to keep children from playing on the dump.

Mr. **Carney**. With regard to the time here, I request that the hearing be held open for written questions of all the witnesses that can be submitted at the end of the hearing or for a time certain thereafter.

Mrs. **Schneider**. Absolutely.

Mr. **Carney**. Thank you.

Mrs. **Schneider**. Congressman Fish.

Mr. **Fish**. Thank you.

Dr. Lowrance, somewhere in your written testimony I think you used the phrase that the chemical waste issue is immature today. Now, yet we know that the issue has been addressed. It has been addressed by industry, subdivisions of industry, whether they be the chemical industry or metals industry, oil industry. It has been addressed by Government at different levels, local, State, and Federal government. Now, I think that you have advocated if not today but other times a central clearinghouse and the need for the information, the experience, whether it be a plus, a positive gain, whether it be experience that shows what course a State has taken, would be enormously valuable if there was a central repository with all the information experienced by industry and government.

Mr. LOWRANCE. I agree. I think it is shameful that we have not built a better capability for sharing information. Industry has a tremendous amount of information. Take the chemical PCBs, which I know you are concerned about because the Hudson River is one of the prime repositories of PCB and the EPA and other authorities have learned a lot about cleaning up the Hudson River and disposing of PCBs. The military have learned from some experiences with PCBs. A number of firms have. The Syntex Corp. of California acquired a company in Utah, and the day after they acquired it they found the plant was contaminated by PCBs. They invented a process, which I believe they have patented, that can destroy PCBs in a rather easy way. That is the kind of information that could presumably be used all over the country in getting rid of those chemicals. I am not aware of a sophisticated clearinghouse function in EPA or elsewhere in the Federal Government, or in industry, for that matter, for passing around the practical day-to-day information, either on the strategy for cleanup, or on ultimate physical disposal, or on health studies.

Mr. FISH. In order to take advantage of both industry and government, you are suggesting the clearinghouse should be government?

Mr. LOWRANCE. I think government would be a good place. I understand that the Chemical Manufacturers Association and other industry groups have task forces on this issue and do exchange information, but in many cases the issue falls between the cracks or it is jointly a State, Federal, and municipal government concern, as well as of industry and of others. I think the Federal Government would be the most logical place, although I would encourage anybody who could develop that function to do so.

Mr. FISH. Thank you.

Mr. WEBER. For areas considering constructing new facilities, is there any definitive data base to predict the safety of different forms of disposal?

Mr. LOWRANCE. I think there is now a much better-developed art of engineering and site design. We now have a much firmer idea of what the considerations are in building a site, whether for ultimate disposal or for treatment before disposal, or whatever. I think that is one of the things that we can point to over recent years as being a real improvement. Industry has gained a lot of experience. A big firm such as Dow or Du Pont operates in so many States and has disposed of waste in so many different kinds of ways in different places, they now know a lot about different situations that can arise. It is as much an issue of attitude as of technique. We might think we can pull technology off the shelf to treat waste; but I am told that that is not strictly true, that there is a need for new kinds of just hardware and techniques for disposal, incineration, and monitoring. I think the problem is more one of attitude and our basic approach to getting the technique in place.

Mr. **Weber**. My State is currently in the midst of a fairly large controversy over the site for disposal facilities, and involved in that is a huge debate over the safety of below-ground storage, particularly in agricultural areas. People living in those areas, while not saying absolutely no disposal here, are urging the State to consider above-ground storage. What can you tell me about the state of the art of below-ground storage and how safe those farmers can feel about storage beneath the ground?

Mr. **Lowrance**. I cannot tell you much because I am not an expert in that end of the business. I would also raise the caution that every site is going to be different. What is very secure in one State because of the local geology will not be true in another State or another locale.

Mr. **Weber**. Is there information to answer that question satisfactorily, to your knowledge?

Mr. **Lowrance**. Not satisfactorily. Certainly not in a general way. I think some below-ground sites are secure and some are not. A lot depends on the chemicals and how they are treated before they are stored. Again, industry has a lot of the answers because it has been getting rid of waste for many decades.

Mrs. **Schneider**. Our next panel will be made up of industry, and they will elaborate on that.

Congressman Gregg.

Mr. **Gregg**. I agree with your concern about the need to do more than just target the individual site and have an integrated approach. How do you do it, though?

Mr. **Lowrance**. I think we do have fairly well developed water quality assurance programs in this country, and it is quite obvious to local firms and to the EPA regional adminstrators and so on where their biggest problems lie, from halogenated hydrocarbon contamination or from heavy metal, for example, and I think they can work "upstream" to find out where the contamination is coming from. In some case they will find that the heavy-metal contamination is coming from an old mine, for instance, and not from a toxic waste dump. That is the kind of analytical approach that needs to be taken as we allocate money, people, and attention to the issue. I believe it is possible to do it. But it requires starting with the environmental medium, such as water, and literally working upstream to see what the various contributions are. It may be that the soil in the neighborhood contains a compound that slowly leaches into ground water, with nothing you can do about it, so then you turn to the next contributions and see which ones are controllable and what the various approaches might be.

Mr. **Gregg**. Does your discipline have the expertise or even the ethic that allow it to determine how to choose which site to clean up? How do you choose a site—how do you evaluate a site that is going to seriously affect 10 people versus 1,000 people.

Mr. **Lowrance**. Well, certainly you can gather technical information to describe the site. You can then make some estimates, although as I have said, we do not know how to do that very well. Some estimates can be made of the potential worst cases of exposure and health effects. If you had two sites that were somewhat equivalent, and in one 10 people were potentially exposed and in the other 1,000 or 10,000 were, science would not allow you to make that decision. That is not a matter of science. It is a matter of economics and fundamental social ethics. Those are not my academic disciplines, although I am currently writing a book about them. We try to protect the most people from the worst harm, but other than that it comes down to your discipline of politics, if I may turn it back to you.

Mr. GREGG. No, you may not. [Laughter.]

Mr. LOWRANCE. There is no easy answer to that one. Science is not uniquely prepared to decide who should be protected.

Mr. GREGG. Thank you.

Mrs. SCHNEIDER. Thank you very much, Dr. Lowrance. That was very insightful.

Let us have the industry panel: Mr. Maurice Leduc from American Hoechst, Mr. George Frankovich from Manufacturing Jewelers and Silversmiths of America, and Mr. Marcel Veronneau from Environmental Waste Removal Inc., Westbury, Conn. A lot of Frenchmen we have here today.

I might, by way of introduction, indicate that we have had an overview. We have discussed the health impact, but we must now recognize that it has been a matter of history whereby industries have poured some of their chemical wastes either into the bay or buried it in landfills. Oftentimes this was without the knowledge of the health impact that might be experienced. It was also without the scientific ramifications of what this type of pollutant might mean. Only in recent history, has industry come to the realization that they were indeed polluting the environment, and there are many industries that have taken responsible actions in improving their processes in dealing with these highly toxic wastes.

We will begin with Mr. Maurice Leduc, and I would very much appreciate it if each of you would kindly summarize your statements. Your statements, in full, will be submitted into the record. If you could take 5 minutes to summarize, that would be appreciated.

Mr. Leduc.

STATEMENTS OF MAURICE LEDUC, DIVISION MANAGER FOR ENVIRONMENTAL PROTECTION, AMERICAN HOECHST CORP., COVENTRY, LONG ISLAND; GEORGE FRANKOVICH, EXECUTIVE DIRECTOR, MANUFACTURERS, JEWELERS, AND SILVERSMITHS OF AMERICA, PROVIDENCE, R.I., ACCOMPANIED BY J. E. THIBAULT, J. E. THIBAULT & ASSOCIATES; AND MARCEL VERONNEAU, PRESIDENT, ENVIRONMENTAL WASTE REMOVAL INC., WATERBURY, CONN.

Mr. LEDUC. Thank you, Madam Chairwoman and members of the subcommittee. My name is Maurice Leduc, and I am manager of environmental protection for the industrial chemicals division of the American Hoechst Corp. Also, I am chairman of the environmental affairs committee of the Rhode Island Chamber of Commerce Federation. The federation played a leading role in the development of the Rhode Island Hazardous Waste Management Act, and the hazardous waste regulations promulgated by the department of environmental management.

American Hoechst Corp. is the U.S. unit of the Hoechst group of 486 companies operating in 131 countries around the globe.

American Hoechst has 11 operating units around the Nation and 19 plants. The company produces polyester fibers, plastics and petrochemicals, pharmaceuticals, agricultural chemicals, plastic film, offset printing plates and industrial chemicals, dyes, and pigments.

The manufacturing facility in Coventry, R.I., produces pharmaceuticals, industrial chemicals, dyes, and pigments.

As one of many industries producing hazardous waste, the chemical industry has been coping with disposal problems for many years. It is not easy, and sometimes the answers take years to work out. But solutions are available.

Our company's philosophy regarding the generation and treatment of hazardous waste is as follows: First, try to develop processes that do not generate hazardous wastes as byproducts or residues. Second, if this cannot be avoided, recycle or reuse the material whenever possible. Third, when neither option is possible, the waste is to be incinerated. Fourth, for material that cannot be handled as above, provide for secure landfilling. Presently, at the Rhode Island works, we recycle or reuse 95 percent of our hazardous waste. We transport over 1 million gallons of waste acid a year to a local textile firm for reuse. Also, we recycle over 600,000 gallons of solvents at our manufacturing facility.

However, the problem begins with the remaining 5 percent. It is no secret that the New England region is severely lacking in an adequate number of treatment and disposal facilities. A study sponsored by the New England Regional Commission indicated that approximately 230 to 330 million gallons of hazardous waste are generated in New England annually by approximately 4,500 firms. Currently, New England does not have a single secure landfill facility or high-temperature incinerator; and existing treatment and solvent recovery facilities need to be expanded.

Directly or indirectly, generators of waste are forced to pay the high costs of transportation to ultimate disposal facilities in New York, New Jersey, Ohio, South Carolina, and Alabama. This places New England industry at a competitive disadvantage for its goods and services in the national marketplace. Also, the greater the distance between the waste generator and the disposal site, the greater the risk to public health and the environment. For the generator, it increases the risk of interrupted service caused by political and public issues in which he cannot participate. In the fall of 1980, one of the major disposal sites in the New York area was forced to curtail its operations because the necessary approvals for expanded operation were delayed. Many firms in New England were forced to stockpile hazardous wastes onsite while desperately searching for alternatives.

The Environmental Protection Agency and the Department of Environmental Management have significantly increased the number of wastes designated as hazardous, and Superfund is taking wastes from old polluting waste sites and relocating them in the remaining facilities. Both of these factors have exacerbated the shortfall of adequate treatment and disposal facilities.

Firms in New England are sensitive to the need for consistent regulations because most wastes are transported interstate. This fact makes it imperative that the States adopt uniform regulations to facilitate waste identification, transportation, labeling, and manifesting.

The lack of adequate facilities demands that we consider incorporating a degree of hazard scheme into the regulatory program. This will help preserve a very valuable resource, the disposal facilities. It will accomplish this by enabling wastes of marginal risk to be handled by facilities that do not require the same degree of high technology to protect the public health and environment as those that handle the highly toxic wastes.

Government must also provide more educational programs for the public and regulated smaller businesses that do not have the resources that are available to the larger companies, such as the one I represent. A recent public opinion poll conducted by the Center for Environmental Studies at Brown University demonstrated that the public is more willing to accept hazardous waste treatment, storage, and disposal facilities in its community if it is knowledgeable on the subject. Many small businesses lack the technical expertise to properly manage their hazardous waste and need assistance.

At the present time, most States do not have adequate funds to properly enforce the broad aspects of the Resource Conservation and Recovery Act program.

The Government must also consider the option of leasing public lands for private operations. This may enhance the acceptance of treatment, storage, and disposal facilities by the public because Government is the entity that gives the operation perpetuity and a guarantee that the business will be operated at optimum conditions.

I wish to thank you for the opportunity of testifying before this committee, and would be happy to respond to any questions you may have.

Mrs. **Schneider**. Thank you very much.

[The prepared statement of Mr. Leduc follows:]

TESTIMONY OF MAURICE A. LEDUC, MANAGER OF ENVIRONMENTAL PROTECTION, INDUSTRIAL CHEMICALS DIVISION, AMERICAN HOECHST CORP.

Mr. Chairman and Members of the Subcommittee:

My name is Maurice A. Leduc, I am Manager of Environmental Protection for the Industrial Chemicals Division of the American Hoechst Corporation. Also, I am chairman of the Environmental Affairs Committee of the Rhode Island Chamber of Commerce Federation. The Federation played a leading role in the development of the R. I. Hazardous Waste Management Act, and the hazardous waste regulations promulgated by the Department of Environmental Management.

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However, the problem begins with the remaining 5%. It is no secret that the New England region is severely lacking in an adequate number of treatment and disposal facilities. A study sponsored by the New England Regional Commission indicated that approximately 230-330 million gallons of hazardous waste are generated in New England annually by approximately 4500 firms. Currently, New England does not have a single secure landfill facility or high temperature incinerator; and existing treatment and solvent recovery facilities need to be expanded.

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Government must also provide more educational programs for the public and regulated smaller businesses that do not have the resources that are available to the larger companies, such as the one I represent. A recent public opinion poll conducted by the Center for Environmental Studies at Brown University demonstrated that the public is more willing to accept hazardous waste treatment, storage and disposal facilities in its community if it is knowledgeable on the subject. Many small businesses lack the technical expertise to properly manage their hazardous waste and need assistance.

At the present time, most states do not have adequate funds to properly enforce the broad aspects of the Resource Conservation and Recovery Act program.

The government must also consider the option of leasing public lands for private operations. This may enhance the acceptance of treatment, storage and disposal facilities by the public because government is the entity that gives the operation perpetuity and a guarantee that the business will be operated at optimum conditions.

I wish to thank you for the opportunity of testifying before this committee and would be happy to respond to any questions you may have.

Mrs. **SCHNEIDER**. Thank you very much.

Mr. Frankovich.

Mr. **FRANKOVICH**. Madam Chairwoman, members of the committee, my name is George R. Frankovich. I am the vice president/executive director of the Manufacturing Jewelers & Silversmiths of America. We spent a lot of time this afternoon hearing about the national and regional picture. I am going to bring you a picture of a small industry in the small State of Rhode Island. Approximately 1,000 of the various manufacturers of my association are located within some 30 miles of where you are sitting, that is the greater Providence, R.I., and southeastern Massachusetts area. This industry employs 32,000 people. It is the largest commercial employer in the State of Rhode Island except the Government—I could not miss that one.

The electroplating process is an intricate part of manufacturing jewelry, particularly costume jewelry and plated silverware. This process produces a number of wastes considered by the Environmental Protection Agency as toxic.

A little over 2½ years ago, thanks to a Federal grant—the Government is not all bad—by the Economic Development Administration, the Manufacturing Jewelers & Silversmiths of America embarked on an 18-month-long technical study of this problem of electroplating wastes. Over 400 producers of these wastes were identified in this geographic area, many of them very small producers. Through extensive plant testing, the type and quantity of each of these wastes was identified. In other words, the initial phase of the study determined the breadth and scope of the environmental problem being created by these electroplating wastes, and the conclusion was that the problem was substantial.

The second phase of the study produced a number of other conclusions. In short form, they were twofold:

One, with relatively small expenditures for capital equipment, most plants could substantially reduce their water consumption and the volume of aqueous waste that they were producing.

Two, the best economic environmental solution for these plants would be a combination of inplant separation and concentration of these wastes and a central facility that would both detoxify these waste products and hopefully recover the valuable metals that most of these wastes contain. While the central plant's detoxification process would eliminate the pollution of the environment that is now occurring, it would also produce a quantity of sludge that would still present a disposal problem. One answer would be to cart these sludges to distant points in Ohio or Alabama for deposit in their hazardous waste dumps. This is both expensive and a solution that has a dubious future. Reclamation of these sludges into useful manufacturing materials would substantially eliminate the sludge problem and reclaim valuable materials for a recycling back into the manufacturing process.

The industry is currently in the process of reducing its water consumption and concentrated wastes. We at the association are seeking out methods of creating and siting central treatment facilities in the region.

This process of siting is quite difficult for the following reasons:

One, we are dealing with a rapidly changing state of the art. New methods and processes, both for inplant and central treatment of these wastes, seem to be appearing every day. The relative merits of one process over the other are most difficult to assess since many ideas are still at the experimental stage. This clearinghouse idea that was mentioned earlier would be invaluable. We have searched this country and Europe for techniques and we have found many. Which are better or poorer we are not sure.

Two, some communities within this geographic area have reacted strongly against the siting of a central treatment facility near them. This, of course, has been a common problem of the siting of such facilities in other parts of the country also.

The association has considered building such a plant in partnership with an expert owner and operator of a facility elsewhere to insure that this vital industry can continue its enormous contribution to the economics of the area. It appeared initially that reasonable rates and service could only be accomplished with association participation. It now appears that because of the data we are providing, through our studies, private entrepreneurs who are operating similar facilities elsewhere are now interested in locating one in this area. We are doing everything we can to encourage them and to assist them in coming to a favorable decision. Competition between them will accomplish our rate and service objectives. Considerable work has been done to locate proper sites for such a plant. A considerable amount of education has been accomplished to make at least some people of this area realize that such a facility is not the problem, but indeed a solution to the problem by both keeping the industry in business here and providing an alternative to illegal dumping or costly haulage of sludge.

I have with me Mr. James E. Thibault of J. E. Thibault & Associates, who was the project leader of our research team. If you have any technical questions, he will be helping me answer.

[The prepared statement of George Frankovich follows:]

STATEMENT OF GEORGE R. FRANKOVICH MANUFACTURING JEWELERS & SILVERSMITHS OF AMERICA INC.

Mr. CHAIRMAN. "My name is George R. Frankovich and I am Vice President/Executive Director of the Manufacturing Jewelers & Silversmiths of America. This trade association has some 2000 manufacturers of jewelry, silverware and allied products within its nationwide membership. Approximately 1000 or one half of the membership is located in this, the greater Providence, Rhode Island geographical area. Including the Attleboros in Massachusetts, this New England industry employs, even with today's reduced workforce, over 32,000 people. It is the largest commercial employer in the State of Rhode Island.

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I have with me Mr. James E. Thibault of J. E. Thibault & Associates, who was the project leader of our research team.

Thank you.

Mrs. SCHNEIDER. Thank you very much.

Mr. VERONNEAU. I am Marcel Veronneau, president of Environmental Waste Removal, Inc. As I sit here this afternoon and listen to all the different problems on the horizon, sometimes they end up in our backyard. EWR has a total commitment to hazardous liquid waste treatment, recovery, and reuse, which is beneficial not only to waste generators, but also to a number of hazardous waste service companies as well.

Treatment of hazardous waste to render it nonhazardous, less hazardous, or to reduce its volume, has increasingly become recognized as a waste management option which is both environmentally beneficial and economically advantageous.

During the past decade, numerous legislative acts have addressed hazardous waste disposal problems through regulating the effect of waste disposal on air, water, and land to insure protection of public health and the environment. Under subtitle C of the Resource Conservation and Recovery Act [RCRA] of 1976 in particular, the Environmental Protection Agency [EPA] established a comprehensive nationwide regulatory program, in effect since November 19, 1980. As a comment to this hearing, the act after it was put into effect really was not explained in a lot of detail and then was put out to the manufacturing and the disposal facility as knowing all that should happen within a couple of months. I would like to comment on that further to the effect of going too fast when you have already given somebody a full mouthful to chew on. This program includes provisions for tracking, management, and transportation of hazardous waste, with standards prescribed for siting, design, and operation of storage, treatment, and disposal facilities.

Due to the curtailment or prohibition of formerly available disposal options, disposal facilities permitted under RCRA have limited capacity, and siting of new facilities is extremely difficult. Concurrently, energy costs have greatly increased in the past decade and certain materials formerly discarded as waste are now perceived as having energy potential or reuse value for productive purposes.

Taking these factors into consideration, and using an analysis of the hazardous waste market in the New England area, Illinois, and other industrial regions of the country, Environmental Waste Removal, Inc. [E.W.R.] has gradually developed a wastewater treatment capability which emphasized energy recovery for internal use, or sale to industrial customers, as well as recovery and recycling of valuable materials from waste streams.

We believe our approach is a viable option for both waste generators and for hazardous waste disposal firms which collect such waste. Waste generators frequently do not have the volume and/or necessary expertise to treat their own hazardous byproducts, nor is recovery on a small scale usually economically feasible for hazardous waste disposal firms.

Some of the liquid wastes received at waste disposal facilities which have energy or material recovery potential are unfortunately wasted. Landfill of these wastes also represents a double cost to firms in general. First is the cost for treating these wastes to meet current regulations before placement into the landfill. Added to that is the cost of valuable landfill space, which undoubtedly will become even more valuable within the next few years.

WASTEWATER TREATMENT PLANT

The Waterbury, Conn., facility is E.W.R.'s pilot plant, hopefully for national expansion. It principally serves metal manufacturing industries, but also textile, leather, pharmaceutical, and other industries. Wastes treated include solvents, waste oils/coolants, hydraulic oils, metal/oil bearing cleaners, 1,1,1-trichloroethane, waste alkaline solvent, waste acids (solution, metals), metal hydroxide sludges, phenol, chromic acid, naphtha, cyanides, methyl ethyl ketones, detergents, fluoride waste, sludge, and other hazardous wastes.

That is a big mouthful, but if the panel would think about it and the people around, these wastes, known as toxic wastes, have been in industry for years and years and years. They are not a new thing to society. They are not a new thing to Providence, R.I. They are not a new thing to Holyoke, Mass., or other places. If we are going to work with material, we should work within the area of expertise, and the area of expertise normally lies in the factory where it originates because these people have been living with this for years and years.

Transportation services also are available. The company operates 20 vehicles, mostly 6,000-gallon vacuum pressure trucks. Additionally, customers have access to technical assistance for preparation, identification, packaging, and labeling of waste for safe shipment, storage, and processing, regulated by EPA.

The plant is subdivided into two main areas—one for recovery and one for disposal—and incorporates receiving pits, mixing tanks for blending wastes, processing tanks, clarifiers, recovery tanks for oils and solvents, dewatering equipment, and holding tanks for the final effluent, not to mention three labs. When we say proprietary multiple steps, chemical treatment, I dare say that anybody with a good knowledge of chemistry could go into the local libraries and find these processes changed by a quirk of a different thing or by some other things. They are not exotic. They are not at the end of the world. They are commonsense things that can be done.

Generally, the E.W.R. method consists of a proprietary multistep chemical treatment process to detoxify the aqueous waste, and separate and recover the oils, solvents, and water. For efficiency and economy reasons, E.W.R. uses a batch-type process, i.e., following laboratory analysis, incoming waste streams are given preliminary treatment, when necessary, and then processed in large batches through the chemical treatment steps.

The total commitment to recovery and reuse translates into several applications and activities. Oil recovered can be used for (1) steam generation to be in processing, heating, and electric generation—this is currently done in both of our facilities; (2) solvent recovery for reuse in industry; (3) heavy metal recovery from plating baths for reuse in industry or asphalt products—this is also presently done in our plants; (4) reuse of organic material such as inks, paint pigments, mix solvents for energy-related use; (5) recovery of ammonia products now in research for agricultural use as fertilizers—some as metal-bearing waste such as copper mixed with ammonia; and last but not least, (6) a program on solar recovery for use in the recovery plants.

Reuse of the clean effluent water from the treatment system for the above mentioned processes includes cooling towers, plating baths, irrigation on farmland, dust control, and numerous other options available for clean water of this nature. When the clean water is used in our plant we used to use somewhere near $4,000 per quart of water. We are now somewhere around $300. We take the water and reuse it for processing, for our cooling towers. Out in Illinois we are now working with the Illinois Agriculture Department on irrigation of cornfields in that area. Dust control of course is an option on some of the land.

Metal hydroxide is now being researched for land cover use saving our gravel banks and sand resources. It is being researched in asphalt products for roads, roofing materials, siding materials, and concrete. We are now using banks and sand resources to a great extent, not only for covering the landfills, but also creating land banks in different areas in town. This is a byproduct of the waste generated by the plating industry, a byproduct which will ultimately lower costs for the generator and serve as a useful product for society and a savings of the raw product.

Our company runs one waste exchange and belongs to a national waste exchange—a computer-based data bank which lists descriptions of wastes wanted or materials available; helps locate buyers and sellers; searches for locations of services or wastes wanted to solve management, treatment, or technology problems; describes expertise or services offered and any related information.

This system services as an instant link for exchange of solid and liquid materials otherwise considered worthless. Waste generators, transporters, processors, consultants or anyone that has an interest in using such a program can also be easily and quickly located.

DEVELOPMENT OF COMPUTERIZED MANIFEST SYSTEM

This has been in effect for 2 years. Highlights include: First, a safety factor for accidental spills or collisions on our highways, facilities, or rail transportation. Quick access for emergency use; and second, reporting and auditing of probable savings and reuse of raw products.

LABORATORIES

The key to hazardous waste recycling and reuse lies in laboratory research and development. Even after this was done it was very hard to convince the EPA that we were right, no matter how hard we tried. Last year it took us 18 months to declassify sludge, 18 months, ladies and gentlemen, 18 months going back and forth from Washington to Boston, back to Hartford, and back around the circle. There is no pat decisionmaking within the bureaucracy to know whether you are going in the right direction until you finally find somebody in the EPA or in the government, either Federal or State, that wants to take the effort to do the job. It is not there. Us as an industry have some of the answers, but we cannot reach the people that can say yes, go, because they do not want to put their name on the paper. They just file that that belongs to the State or that belongs to the city, so we go round and round and round.

FUTURE DEVELOPMENTS

E.W.R. Inc.'s total commitment to hazardous liquid waste treatment, recovery, and reuse has proved to be a successful and sound management approach. Our industry must be committed to recovery, recycling, and reuse if we are to help our manufacturers survive and be the backbone of our Nation and leaders in world trade—leadership which we know is possible.

Just as a comment going over the material that people have given us, you have on one here research pertaining to hazardous waste is also funded under Superfund, and it is drafted in the amount of $150,000. Ladies and gentlemen, if that is all I used in my company is $150,000 for research, I would not be where we are today. You have in your hand the Superfund. The Superfund is the ideal place for everybody that was talking this afternoon to find out the answers of where they are going. If you properly monitor the Superfund, properly find out where that stuff is going, properly find out how it is going to be handled, you will probably have 85 percent of your answers. To go back to the basic Yankee ingenuity and simpleness, please go back and look at what is coming out of these places, because those are still being produced to some extent, and those are going to be the problems of the future until somebody decides not to make that chemical. Thank you.

[The prepared statement of Marcel Veronneau follows:]

A TOTAL COMMITMENT TO HAZARDOUS LIQUID WASTE TREATMENT, RECOVERY, AND REUSE

E.W.R. Inc. (Waterbury, Connecticut) has developed a management approach for liquid waste treatment, recovery, and reuse, which is beneficial not only to waste generators, but also to a number of hazardous waste service companies as well.

Treatment of hazardous waste to render it non-hazardous, less hazardous, or to reduce its volume, has increasingly become recognized as a waste management option which is both environmentally beneficial and economically advantageous.

During the past decade, numerous legislative acts have addressed hazardous waste disposal problems through regulating the effect of waste disposal on air, water, and land to insure protection of public health and the environment. Under Subtitle C of the Resource Conservation and Recovery Act (RCRA) of 1976 in particular, the Environmental Protection Agency (EPA) established a comprehensive nationwide regulatory program, in effect since November 19, 1980. This program includes provisions for tracking, management, and transportation of hazardous waste, with standards prescribed for siting, design and operation of storage, treatment, and disposal facilities.

Due to the curtailment or prohibition of formerly available disposal options, disposal facilities permitted under RCRA have limited capacity, and siting of new facilities is extremely difficult. Concurrently, energy costs have greatly increased in the past decade and certain materials formerly discarded as "waste" are now perceived as having energy potential or reuse value for productive purposes.

Taking these factors into consideration, and using an analysis of the hazardous waste market in the New England area, Illinois, and other industrial regions of the country, Environmental Waste Removal, Inc. (E.W.R.) has gradually developed a wastewater treatment capability which emphasized energy recovery for internal use, or sale to industrial customers, as well as recovery and recycling of valuable materials from waste streams.

We believe our approach is a viable option for both waste generators and for hazardous waste disposal firms which collect such waste. Waste generators frequently do not have the volume and/or necessary expertise to treat their own hazardous byproducts, nor is recovery on a small scale usually economically feasible for hazardous waste disposal firms.

Some of the liquid wastes received at waste disposal facilities which have energy or material recovery potential are unfortunately wasted. Landfill of these wastes also represents a double cost to firms in general. First is the cost for treating these wastes to meet current regulations before placement into the landfill. Added to that is the cost of valuable landfill space, which undoubtedly will become even more valuable within the next few years.

WASTEWATER TREATMENT PLANT

The Waterbury, Conn. facility is E.W.R.'s pilot plant, hopefully for national expansion. It principally serves metal manufacturing industries, but also textile, leather, pharmaceutical, and other industries. Wastes treated include solvents, waste oils/coolants, hydraulic oils, metal/oil bearing cleaners, 1,1,1-trichloroethane, waste alkaline solvent, waste acids (solution, metals), metal hydroxide sludges, phenol, chromic acid, naphtha, cyanides, methyl ethyl ketones, detergents, fluoride waste, sludge, and other hazardous wastes.

Transportation services also are available. The company operates 20 vehicles, mostly 6,000-gallon vacuum pressure trucks. Additionally, customers have access to technical assistance for preparation, identification, packaging, and labeling of waste for safe shipment, storage, and processing regulated by EPA.

The plant is subdivided into two main areas—one for recovery and one for disposal—and incorporates receiving pits, mixing tanks for blending wastes, processing tanks, clarifiers, recovery tanks for oils and solvents, dewatering equipment, and holding tanks for the final effluent not to mention 3 labs.

Generally, the E.W.R. method consists of a proprietary multistep chemical treatment process to detoxify the aqueous waste, and separate and recover the oils, solvents, and water. For efficiency and economy reasons, E.W.R. uses a "batch-type" process, i.e., following laboratory analysis, incoming waste streams are given preliminary treatment, when necessary, and then processed in large batches through the chemical treatment steps.

ZERO-ENERGY COST

The total commitment to recovery and reuse translates into several applications and activities. Oil recovered can be used for (1) steam generation to be in processing, heating and electric generation; this is currently done in both of our facilities; (2) solvent recovery for reuse in industry; (3) heavy metal recovery from plating baths for reuse in industry or asphalt products; this is also presently done in our plants; (4) reuse of organic material such as inks, paint pigments, mix solvents for energy related use; (5) recovery of ammonia products now in research for agricultural use as fertilizers; some as metal bearing waste such as copper mixed with ammonia; and last but not least (6) a program on solar recovery for use in the recovery plants.

Reuse of the clean effluent water from the treatment system for the above mentioned processes includes cooling towers, plating baths, irrigation on farm land, dust control and numerous other options available for clean water of this nature.

Metal hydroxide is now being researched for land cover use saving our gravel banks and sand resources. It is being researched in asphalt products for roads, roofing materials, siding materials and concrete. This is a by-product of the waste generated by the plating industry. A by-product which will ultimately lower costs for the generator and serve as a useful product for society and a savings of the raw product.

WASTE EXCHANGE

Our company runs one waste exchange and belongs to a National "Waste Exchange"—a computer based data bank which lists descriptions of wastes wanted or materials available; helps locate buyers and sellers; searches for locations of services or wastes wanted to solve management, treatment, or technology problems; describes expertise or services offered and any related information.

This system serves as an instant link for exchange of solid and liquid materials otherwise considered worthless. Waste generators, transporters, processors, consultants or anyone that has an interest in using such a program can also be easily and quickly located.

DEVELOPMENT OF COMPUTERIZED MANIFEST SYSTEM

E.W.R. Inc. operates the first computerized manifest system for use by all parties—State, Federal agencies, generators, transporters, disposers, reprocessors and any type of industry dealing with Federal regulations and compliance. Highlights include (1) a safety factor for accidental spills or collisions on our highways, facilities, or rail transportation. Quick access for emergency use (2) reporting and auditing of probable savings and reuse of raw products.

LABORATORIES

The key to hazardous waste recycling and reuse lies in laboratory research and development.

FUTURE DEVELOPMENTS

E.W.R. Inc.'s total commitment to hazardous liquid waste treatment, recovery and reuse has proved to be a successful and sound management approach. We plan for future activities in the oil, solvent, plastic, paper, chemical and additional industries to help develop the proper method for first (1) recovery and reuse and second (2) for proper disposal. We wish to be in the forefront of such development given the proper approvals, methods and research. Our industry *must* be committed to recovery, recycling and reuse if we are to help our manufacturers survive and be the backbone of our nation and leaders in world trade—leadership which we know is possible.

Mrs. **Schneider**. Thank you very much. I might point out in reviewing those numbers that it is not $150,000, but those are written in millions of dollars, so it is $15.5 million, fortunately.

I have a multiple-choice question for you gentlemen to answer. In your efforts to improve your industry or your varied industries, whom do you find provides the greatest impediment? Is it the public acceptance, is it the lack of capital available within your own respective industries, or is it the State and Federal Government's foot-dragging process in providing licenses to facilities to handle the toxic wastes that all of you are generating?

Mr. Leduc.

Mr. **Leduc**. I think perhaps Government does not want to hear this, but it does create an obstacle in one major area where I think some improvement is definitely needed, and that is in recycle and reuse. The Government, although the name of the law was Resource Conservation and Recovery Act, it is getting to be known as the "Thou Shalt Not Act," with very little thought to management. When companies try to resolve their problems in a resourceful and conservative demeanor, they run into a lot of roadblocks. I think Government does not assist industry or make it easy for industry to recycle and reuse its materials. It is an obstacle. And I think the public also, as I mentioned in my testimony, for very good reasons, is very leery of the entire issue of hazardous waste, and I think we need to have a better informed public, one that gets stories that are not prejudiced, with both sides being represented, so that they have a full picture of what we are talking about and a realization that hazardous waste can be handled successfully and in a safe manner.

Mrs. **Schneider**. Yes.

Mr. **Frankovich**. In our industry we are composed of many small units and we are dedicated to the central treatment facility in addition to inplant treatment as an answer. There we have had an interplay with the public and the Government that has been most discouraging. As I indicated in my testimony, the problem is not a central treatment facility. That is the solution to the problem. The problem is the illegal dumping into the bay right now of many of these chemicals. An understanding on the part of the public that hopefully will activate local government into accepting such a facility has been one of our principal problems, plus the changing rules and regulations at the Federal level that have proven extremely costly to those in our industry that have attempted to spend several hundred thousand dollars for a plant, and that is a lot of money for us, to clean up the waste.

Mrs. **SCHNEIDER**. May I assume that your preference is that the EPA and other State agencies maintain the laws that they have already passed and not shift gears on you again, but rather assist you in complying with those laws?

Mr. **FRANKOVICH**. That is correct.

Mrs. **SCHNEIDER**. Would you feel the same way, Mr. Leduc?

Mr. **LEDUC**. I think there have been mistakes made already. I agree that shifting gears creates many problems, because it takes industry a long time to get into a position to address all the peculiarities of any regulation. However, I think EPA missed an opportunity to listen to industry's complaints. They had a series of meetings they called type 2 meetings where they had the industries involved, the transporters, the generators, come in and discuss with them the problems in proposed regulations that they were about to promulgate, and they had draft copies for us to look at. And we commented on those draft copies, and when the advance notice came out in the Federal Register, it was obvious that we all went to these meetings and were not heard.

Mrs. **SCHNEIDER**. It has been said that this administration is looking for industry to have the easy way out in dealing with toxic wastes and other environmental pollutants. Do I understand correctly that you gentlemen are saying that you are anxious to find the right way in dealing with these solutions, which may not necessarily be the easiest way?

Mr. **FRANKOVICH**. I think my industry has made up its mind to the fact that it does have things to do to clean up its environment both in the plant and in the community. I think it is dedicated to doing that, but it wants to do it in the proper fashion.

Mr. **LEDUC**. One of the problems with doing things the right way is that it depends on which State agency you talk to and in which State.

Mrs. **SCHNEIDER**. So then, the fault should be clearly placed on the shoulders of the State and Federal Governments in clearly defining once and for all the appropriate solution?

Mr. **LEDUC**. I would like to see the Federal Government play a stronger role in overseeing the State activities, especially in the area of definition of hazardous waste. To me, to have 50 States with different definitions of what is hazardous does not from a technical sense make any rationale whatsoever, because what is hazardous to me in Rhode Island at a given level should be hazardous to somebody in Missouri at the same level. I think uniform regulations would make it a lot easier for us, because unlike many other activities, there is much more interstate commerce in hazardous waste than in any of the other environmental disciplines we have to address ourselves to.

Mr. FRANKOVICH. If I may add to that, it is not only the States whose law is different. It is the local communities. In the State of Rhode Island you have nine sets of standards right now in the State of Rhode Island.

Mrs. SCHNEIDER. Mr. Leduc has to leave us. Therefore, if Members of Congress in attendance have questions of Mr. Leduc, why do we not address those to him. Then we can go back to speaking to the other gentlemen.

Mr. BROWN. Could I talk to Mr. Leduc for a minute?

Mrs. SCHNEIDER. Certainly.

Mr. BROWN. You mentioned your experience in discussing draft regulations with the EPA, and then having them issued without any changes resulting from your discussions. Do I understand that correctly? They went through a process of discussing regulations with you and then paid no attention to suggested changes that you made?

Mr. LEDUC. I would not want to say they did not pay attention to us, but it did not make any difference in what they proposed in the Federal Register. Ironically, many of the problems that we made them aware of in their initial drafts have come back to haunt them in many legal decisions since then.

Mr. BROWN. This is the past administration, not with the present administration, am I correct?

Mr. LEDUC. This would have been in approximately 1977.

Mr. BROWN. We assume the present administration will do better than that.

Mr. LEDUC. I will resume my comment 4 years from now.

Mr. BROWN. I of course—I am familiar with—I have been exposed to some of the problems of trying to develop a more cooperative relationship between industry and Government. Actually, I think that this is a critical need in terms of our current situation. But we run into this kind of a problem. If EPA had drastically modified their regulations as a result of their discussions with you, there are some groups—we will say public interest groups—that would have been very vociferous in their condemnation of EPA for caving in to industry. You know, you are a big corporation, and the process would have been subject to criticism for that on the grounds that your proposed changes were really self-serving and not really motivated by the public interest. Now, I am hypothesizing this, but I have seen it happen before, so I suspect it could have happened there. And I have been going through this process right now in connection with an exercise aimed at rewriting the FIFRA law, and I have been trying to cooperate very closely with the chemical industry. In fact, your company is probably involved in that to some degree. But there is a problem in reaching that optimum ground at which we can say that the interests of the public, the industry, the Government, to the extent that the Government has a separate interest, have all been adequately balanced. How do we know when we have got that balance?

Mr. LEDUC. If I had the answer to that I would probably have a higher position than I have. But I think the point I was trying to make is, if we worried about resources—and I am talking about people, money, time particularly—why have these meetings if they are not going to serve a purpose? I have the feeling that I wasted resources, time, and money, and did not get anything out of it, and neither did anybody else at the meeting.

Mr. **Brown**. I agree with you on this point. I think it was very poor policy for the EPA to go through this exercise without giving some cognizance to the suggestions that you made. I would not dream of doing that, for example, in discussing changes in the FIFRA law. If proposed changes are offered, I think some effort should be made to accommodate them. But I still do not know how to reach that balance, and perhaps I never will find out, but I was hoping I could get some enlightenment.

Mrs. **Schneider**. Are there any other members who have questions of Mr. Leduc? If not, then you are free to depart.

Congressman Brown, do you have any further questions?

Mr. **Brown**. No further questions.

Mrs. **Schneider**. Mr. Carney.

Mr. **Carney**. Madam Chairman, I have no further questions.

Mrs. **Schneider**. Congressman Fish.

Mr. **Fish**. One question for anybody who cares to answer it. I think this was proposed by Governor Peterson, that if industry were made to pay the cost of disposal, they would stop producing waste.

Mr. **Frankovich**. I would like to comment on that. I think that needs some clarification. Industry if it continues to exist will not be paying the cost. It will be the public paying the cost of the waste through the price of the product. And eventually industry will be separated into two groups, those whose product can stand a price increase, and they can continue to operate and prosper, and those that are competing perhaps with other areas, perhaps Hong Kong, perhaps China, perhaps elsewhere, where the products do not carry the cost of waste disposal, and those companies that cannot meet that competition will drop by the wayside. So the public will be paying the cost eventually.

Mr. **Fish**. Thank you, Mr. Chairman.

Mr. **Weber**. I have to add to that. It is not within the purview of this subcommittee, but has your industry as a major employer in this area been impacted by environmental regulations.

Mr. **Frankovich**. The industry in the Massachusetts area has been because of the Massachusetts laws that came into play much before the laws of this State or the Federal laws. At the present time, the impact is being felt in Rhode Island, it is starting to be felt.

Mr. **Weber**. In what regard?

Mr. **Frankovich**. Right now we are pricing out inplant processing and we are putting some in.

Mr. **Weber**. Explain what that means to one not particularly familiar with your industry.

Mr. **Frankovich**. There are some larger plants in the State that have a very complete inplant processing facility where they will take their electroplating waste and end up with a sludge, but we are talking about several times $100,000 for a modest-size plant. Other plants are only starting the process of inplant treatment. They are starting to save water by various means and starting to reduce the quantity of their waste, that is the aqueous quantity of their waste, by concentrating it into smaller packages. This is costing some money. Bringing waste down to a sludge form in an individual plant is costly for a jewelry manufacturer.

Mr. **Weber**. Thank you.

I have no more questions, Madam Chairman.

Mrs. **Schneider**. Congressman Gregg.

Mr. **Gregg**. I will pass.

Mrs. **Schneider**. Congressman Carney.

Mr. **Carney**. Thank you.

Is it correct, sir, that you said that industries here in Rhode Island have proposed joint ventures to process the waste associated with the manufacturing of jewelry, the silversmith industry.

Mr. **Frankovich**. Not exactly. What we have proposed is a central treatment facility that will take jewelry and other similar wastes, detoxify them, and hopefully recover some of the resources that are now being turned into dumps and things of that type. When I said participation, we were looking to be a partner with an owner-operator elsewhere that knew more about what they were doing than we did from a technical point of view.

Mr. **Weber**. Within the purview, is the state of the art advanced enough to permit that to happen, or are there areas where additional research would enable you to do that more effectively?

Mr. **Frankovich**. I would like to have Mr. Thibault comment on that.

Mr. **Thibault**. For the most part the technology is here. It has been used on smaller scales than an essential recovery facility, but indeed is here. There is room for R. & D., I would say pretty much a demonstration effort, if you will, on a large scale for some of the technology, but by and large, the technology is here today for a plant.

Mr. **Frankovich**. I have made trips to recovery centers in Vienna, Austria, and Switzerland. It appears that perhaps because they had the laws so much earlier than we did they have developed certain technical processes that are somewhat in advance of some of ours.

Mr. **Carney**. There must be an enormous amount of wealth in that waste for your industry.

Mr. **Frankovich**. We are pretty careful about the silver and gold content. Not quite so careful about the nickel, which constitutes, I believe, some 53 percent of the waste we produce, and coppers and zincs.

Mr. **Carney**. If you were the Governor of Rhode Island, would you propose this unit, with the thought that you were running for reelection?

Mr. **Frankovich**. I would propose that a unit be sited from a political point of view. I would not propose as Governor that the Government own and operate such a site.

Mr. **Carney**. The point I am trying to make is: Would you do it here in Rhode Island, not as a governmental agency, but say as an ABC Corp., who is in the business of resource recovery, who has an established good track record, who want to put it here. Would you get reelected if you went out and said that this is the thing to protect the jewelry industry or they are going to move somewhere else. If you state a case that would make the processing plant palatable to the people of Rhode Island, would you be reelected?

Mr. **Frankovich**. Massachusetts law attempted to go further than any I know of. It involves the ban of a community veto on such a plant, and installs a bargaining process between the would-be developer and the community. The process can extend to planting trees. It can extend certainly to monitoring the operation, even where in one case, one community in Massachusetts, the company itself pays for a city monitoring team that goes into that plant periodically to make sure what they are doing is proper from an environmental point of view. It can involve building of access roads. In one case it involved building a sports field for kids to use.

Mr. **Carney**. Is the industry suffering from the migration to the South and the Southwest that many industries in this area of our country are suffering from?

Mr. **Frankovich**. Not exactly. Let me state this very carefully. The jewelry industry, the silverware industry has not been moving from the Northeast, including the New York area, to the West. However, a higher and higher proportion of jewelry manufacturing is now occurring in the Sun Belt States. It initiated there. It is not a move as such.

Mr. **Carney**. So it would be advantageous for you to enhance the industry's capabilities to compete with that area and with foreign competition?

Mr. **Frankovich**. Absolutely. As Governor I would certainly try to get it through. I do not expect to be confronted with that problem.

Mrs. **Schneider**. Also, Mr. Carney, if you would like to return sometime to Rhode Island when the weather is better, we could go scuba diving and look for gold and silver in the bay.

We will now have our Government panel of State and Federal representatives. I will also say, for the benefit of the press, that at the conclusion of this next panel we will have 10 minutes worth of questioning of the Members of Congress by the press. We then have to scoot these folks out of here to catch their planes, but the rest of you may have the opportunity to meet with the press at that time.

I would like to begin by introducing Mr. Tupper Kinder, who is an assistant attorney general for the State of New Hampshire, and chief of the environmental protection division of the attorney general's office. We welcome you from the grand State of New Hampshire.

STATEMENTS OF E. TUPPER KINDER, ATTORNEY GENERAL, ENVIRONMENTAL AFFAIRS OFFICE, CONCORD, N.H.; ANDREW JOVANOVICH, ACTING ASSISTANT ADMINISTRATOR, OFFICE OF RESEARCH AND DEVELOPMENT, FEDERAL ENVIRONMENTAL PROTECTION AGENCY, ACCOMPANIED BY MATT BILLS, DEPUTY OFFICE DIRECTOR, OFFICE OF MONITORING SYSTEMS AND QUALITY ASSURANCE, AND CHAIRMAN, HAZARDOUS WASTE COMMITTEE, AND STEVE JAMES, CINCINNATI ENGINEERING LAB.

Mr. KINDER. Thank you very much. I know you can hardly wait to hear me read my testimony, so I will not.

Mrs. SCHNEIDER. Your testimony will be put into the record in its entirety. If you choose to summarize it over a 5-minute period, that would be preferred.

Mr. KINDER. I would like to do that.

I would for the record make a note of a typographical error on page 5 in the second to last line, the first paragraph. The word "optional" appears, and it should read "optimal." This is on page 5, the second to last line of that first full paragraph.

I would like to take the opportunity to summarize what I have stated in this testimony. Our experience in New Hampshire with hazardous waste has been, frankly, overwhelming to us as a small State. In about 1978 we had no background with the problem. Now we have over 30 sites that are in some course of either study or cleanup. Four of those sites have received Federal assistance in terms of Federal dollars. Three of the sites are within the infamous list of 115 sites that have been identified by EPA as the most serious to date.

The problem has clearly outdistanced our resources and power and equipment that we have to devote to it. The Nashua site was the first site in the country to receive Federal dollars under Superfund under cooperative agreement. That site, just briefly, occurred over a period of several years, between late 1978 and late 1979. We are not sure exactly how much waste went in there. It was not a legal site, but hundreds of thousands of gallons of chemical wastes were dumped and went into the ground on that site. Our monitoring of the site indicates that at least 126 different organic chemical compounds are in the ground water. The ground water moves in that area at approximately 1½ feet per day, and on this site it has already contaminated a brook which surrounds the site and should reach the Nashua River within 1 or 2 years. That river serves as a water supply as it moves to downstream communities. Obviously emergency action is required on that site.

I feel that the State of New Hampshire's response has been quite good to the problem, despite its scope. We have a tough new law that came into effect in this last legislative session that provides a sufficient deterrent, I think, or I hope. We have beefed up our regulatory staff and our enforcement staff. We have obtained what is known as interim authorization from the Federal Environmental Protection Agency which gives the State the authority to perform some parts of the RCRA program. We have developed a hazardous waste funding law in the State which will enable the State of New Hampshire to pay its share of cleaning up some of these sites. We have recovered funds from those responsible for the dumping of hazardous wastes where possible. We have accomplished the cleanup of a number of sites on our own without Federal assistance. But the risks are obviously still there, and we are dealing only with a very small part of the problem.

The major points I would like to make are: (1) that our experience shows that a Federal program in this area is obviously necessary and is one that is going to be necessary for an extended period of time. Our program in New Hampshire is going to take a number of years to get up to speed just to get a handle on the problems we have discovered to date. No doubt we will discover more. The Federal assistance is necessary in a number of areas.

Of particular importance to this committee is the research and development end and the technical assistance end. The States in New England like New Hampshire do not have the laboratory facilities to deal with the onslaught of requests for sampling and analysis. We have had to lean heavily on EPA's region 1 lab in Lexington, Mass. I have heard from time to time that that laboratory was considered as one of the regional laboratories which would be closed down. That would be a catastrophe for us. The staff at that laboratory has not only provided us with the ability to analyze samples of ground water and samples of chemicals, but their staff has also been very helpful in training the staff in our State on both laboratory techniques and on safety and sampling-type training. In other words, the manpower and the equipment support that we receive from that laboratory is critical to our ability to deal with the hazardous waste problem.

On another related point with regard to research and development, you have heard much testimony today about the concern over the lack of available hazardous waste disposal facilities. One of the critical problems that I see with that—it certainly takes no great insight—is the lack of public confidence in the technology that is available. It seems to me that the public confidence has to be restored, and one way of doing that is by providing an adequate research and development program at the Federal level.

As a final comment, I would like to comment on what we have seen as a weakness in the Superfund program based on our experience with the program to date. The law was set up originally to balance the need for cleanup efforts with available funds, and certainly that is quite understandable. However, because of the way the law has been implemented, and I will use as an example the emergency removal provisions of the law, which allow the Federal Government and EPA to move into a site and take emergency measures to prevent a release from the site. In many instances in New Hampshire where that initial removal activity has not been integrated with what is known as the remedial effort—the long-term cleanup effort to come—it has resulted in costs relating to a particular site which are in excess of what the cost might have been to just clean up the site right from the beginning. An example of that is where we had a particular site which had about 1,300 barrels of chemical waste which had been buried. Those barrels were excavated and placed in a sort of rudimentary containment area on site and then provided with site security for a period of time. Hindsight, of course, is 20-20, but the costs of security on that site are reaching proportions where perhaps that material could have been disposed of properly. In other words, we feel that the cleanup response for any particular site must be approached in an integrated fashion. Any effort that EPA or a State embarks on should only be undertaken after its effect on the total cleanup has been thoroughly analyzed.

Another instance of our concern over the efficiency of the operation of the Superfund program has to do with the issue of operation and maintenance of remedial facilities once a particular site—once a particular cleanup of a site has been decided on. On a site like the Sylvester site in Nashua, N.H., where there is extensive ground water contamination, those operation and maintenance costs may be extensive over the years, and they are very difficult to assess, particularly in the early stages of cleanup of a site.

EPA, in an effort to protect the funds that are available under Superfund, I believe is seeking to have those operation and maintenance responsibilities shifted to the States over the long term. I can understand their reason for doing so, but I believe States will be extremely hesitant to become involved in the cleanup of hazardous waste sites where those operation and maintenance costs are uncertain, and where the Federal Government has not committed itself to participate in those costs.

Mrs. SCHNEIDER. I wonder if you could summarize your remaining points.

Mr. KINDER. That is the conclusion of it, so I will stop right there.

[The prepared statement of Tupper Kinder follows:]

STATEMENT

OF

E. TUPPER KINDER
ASSISTANT ATTORNEY GENERAL
OFFICE OF THE ATTORNEY GENERAL
STATE OF NEW HAMPSHIRE

BEFORE THE

SUBCOMMITTEE ON NATURAL RESOURCES, AGRICULTURAL RESEARCH, AND ENVIRONMENT

COMMITTEE ON SCIENCE AND TECHNOLOGY
HOUSE OF REPRESENTATIVES

CONCERNING

THE PROBLEM OF HAZARDOUS WASTE DISPOSAL

DECEMBER 7, 1981

My name is Tupper Kinder. I am an Assistant Attorney General for the State of New Hampshire and chief of the Environmental Protection Division of the Attorney General's Office. As recently as late 1978, New Hampshire had essentially no experience with the problem of hazardous waste. A mere three years later, the State is involved in five cases of major litigation involving hazardous waste sites, the cleanup of which may cost up to $15 Million Dollars. We recognize that these five sites are merely the tip of the iceberg. We have an additional 30 sites under investigation or in some form of administrative action.

A hazardous waste dump site on Gilson Road in Nashua, New Hampshire, known as "the Sylvester Site" is probably the most well known of the New Hampshire sites. It was the first site in the country to receive funding for remedial actions through a cooperative agreement under the Comprehensive Environmental Response Compensation and Liability Act of 1980 (P.L. 96-510) ("Superfund"). For that reason, and because many officials feel the site is the most serious in the state, the history of the Nashua site is instructive on the problem of hazardous waste cleanup generally.

The Sylvester site "happened" in large part because of the unavailability of suitable waste disposal facilities in the Northeast. By far the largest amount of chemicals disposed of at the site came from what was assumed to be a legitimate disposal facility. That disposal facility received a greater volume of waste than it could handle and turned to an inexpensive disposal method for the excess.

After discovery of the site in early 1979, the response was prompt and effective by comparison with other hazardous waste problems. The State appropriated $200,000 for the immediate removal of 1,300 drums of chemical waste and for an intensive hydro-geological study. Contamination of the groundwater with volatile organic compounds was found to be as high as 1,800 parts per million. The State, with the support of federal laboratory and field personnel, was able to establish a reliable data base upon which future decisions could be founded. A cooperative agreement between EPA and the State allowing the commitment of Superfund dollars was reached in August of 1981.

A comparison of the Sylvester site progress in the context of the hazardous waste problems reveals three basic tenets: (1) an integrated remedial approach is necessary to expeditious and cost effective resolution of existing hazardous waste sites; (2) a commitment by the Federal Government to provide laboratory and staff support to the states, and research and development on remedial measures is essential to states being able to respond to hazardous waste problems as they develop; (3) the establishment of suitable hazardous waste disposal facilities is the only way to insure that new problems will not be created.

The integrated approach. Because of the scope of the hazardous waste problem and the risks it presents, it is clear that a national program is required. Superfund, or something like it, must be available at an adequate level of commitment.

As established, Superfund makes an effort to balance the present reality of limited funds with the need for prompt action in emergency situations. It does this by creating two distinct response mechanisms, removal (emergency) action and remedial (long term) action (see Superfund, supra, Section 101(23 and 24); 104(a)(1); and 104(c)(3)). Ironically, this distinction has contributed to the difficulty of determining final guidance under the National Contingency Plan. In the absence of this guidance, the program has proceeded by fits and starts in a manner which is confusing to the states and the public, and worst of all may not be cost efficient.

For example, several sites in New Hampshire have been determined eligible and received funds for emergency removal actions. These actions have been effective in dealing with immediate problems, but have often been undertaken without sufficient consideration for how the removal action will fit in with long term remedial actions to follow. Under the present program, the site must be re-evaluated to determine whether it is eligible for remedial funds. While awaiting this decision, some sites have incurred security costs which are nearly as high as the cost of total remedial action itself.

The Sylvester site serves as an example of a site in which removal and remedial actions were integrated from the beginning. The commitment by state and regional EPA officials to resolving the problem was total. The 1,300 drums were removed immediately, the analysis of groundwater contamination moved forward promptly, and the development of remedial measures was completed. In short, each action under Superfund, be it removal or remedial, should be taken only after early involvement of both state and federal officials and after a thorough understanding of how that action effects the eventual total response to the site.

Another example of the program's failure to encourage cost effective solutions is the treatment of future operation and maintenance expenses. EPA has indicated a desire to place full "O&M" responsibilities on the states, despite language in the law which appears to make such costs eligible for the 90% - 10% federal/state match. (See, Superfund, supra, Section 104(c)(3)(C).) "O&M" costs, particularly on sites with extensive groundwater contamination like the Sylvester site, are uncertain and may be extensive. States will be hesitant to proceed with an option which contains such uncertain costs, even if that option is the most cost effective. Similarly, states will not undertake remedial measures where the federal commitment to O&M costs is tentative, i.e., subject to reevaluation at a later date when the entire burden may be shifted to the state. As indicated above, a commitment to the total remedial effort is essential if optional solutions are to be selected.

Research and development and technical support. The Sylvester site, in conjunction with other hazardous waste sites in the State of New Hampshire, presented an overwhelming problem for state laboratory equipment and manpower. The ability to call on the EPA Region I Lexington Laboratory for monitoring and analysis has been critical to the proper handling of hazardous waste problems. Regional facilities are also invaluable in providing technical and safety training to laboratory and field personnel. The commitment to research and development, particularly in the area of the effectiveness of remedial measures is also important. Remedial measures such as slurry walls, encapsulation of waste, solidification of waste, and treatment systems are clearly at the leading edge of the technological state of the art. Research and development on these measures is important to provide information for the selection of the most effective measures.

Siting of facilities. Of course, research and development does not stop at remedial measures. Most officials would agree that the answer to the hazardous waste problem is the establishment of suitable disposal facilities. Without such facilities, the financial incentive for illegal and improper disposal is simply too high and future Sylvester sites will occur. I have personally discussed this problem with representatives of small businesses who feel they are literally being forced into illegal activity. Because of the lack of disposal facilities, some businesses simply have no one to handle their wastes. Their option is to accumulate the wastes (a practice they view to be impractical, expensive and dangerous) or dispose of it in a manner they know to be improper. The fundamental problem with siting is the lack of public confidence. That confidence must be restored through a resolution of the technical problems of disposal.

In summary, the hazardous waste disposal problem is immense and the risks are very high. Not only is the public exposed to toxic substances, but the eventual result of these sites may be the permanent loss of our underground water resources. The lack of sufficient cleanup revenues may cause EPA to allow discharges from hazardous waste disposal sites which violate water quality standards. Such a decision would be a serious step backward after a decade of real progress under the Federal Clean Water Act. I would be remiss if I did not mention my concern for the preemption language which appears in Section 114 of Superfund. The ambiguous language in that section may impede states from making their own financial commitment to the cleanup effort. If states like New Hampshire are prevented from developing a cleanup fund by this preemption language, the states may be unable to clean up sites on their own or even to contribute the matching dollars required by Superfund. Section 114 should be clarified to permit the establishment of state hazardous waste cleanup funds.

There is no question that the problem comes down to a discussion of economics. The risks of inadequate funding are severe.

Mrs. SCHNEIDER. Thank you. I was under the impression that Mr. Kinder had to leave early.

Mrs. SCHNEIDER. I would like to call on Dr. Jovanovich, the Acting Assistant Administrator for the EPA Office of Research and Development. I welcome you here, and appreciate the cooperation we have had from the EPA. We had a briefing from the EPA Regional Office earlier this morning so that the Members of Congress could be better informed on the site-specific condition of the Picillo landfill. Can you give us a broader view of the research and development implications and the direction that EPA is going in thus far with regard to toxic waste?

Mr. JOVANOVICH. In the interest of time I will try to excerpt my written testimony. I ask that it be submitted.

I should emphasize that as the Acting Assistant Administrator of the Office of Research and Development in EPA I am not necessarily competent to answer questions on the regulatory program. I would be happy when we come to such questions if I cannot answer them to provide you with written answers later for the record.

I would like to give you a brief overview of how our research program interacts with the regulatory programs. In 1976, the Resource Conservation and Recovery Act was passed which charged the EPA with developing and enforcing regulations for disposal of hazardous waste. Last year the Comprehensive Environmental Response, Compensation, and Liability Act known as Superfund was passed, and this provides EPA the authority and funding for an aggressive program to deal with uncontrolled waste sites and toxic chemical spills.

Until 1979, the Agency's hazardous waste research program mostly addressed the collection, treatment, disposal, and recycling of municipal and industrial nonhazardous wastes. With that work largely completed, today we have two complementary research programs, one in support of RCRA devoted mainly to hazardous wastes, and one supporting the newly enacted Superfund.

The Superfund is not to be spent on research but on helping clean up wastes, so our programs are directly technical support in that area. The RCRA research provides the fundamental scientific and technical knowledge necessary for proper management of hazardous wastes, and the Superfund program provides assistance in applying an arsenal of already available technologies to the cleanup. As our RCRA research program progresses, new knowledge and tools will become available for use under Superfund, through close coordination of the two programs.

The overall research program can be divided into four parts. Risk assessment, which is the process of trying to estimate what the risk is that is posed by a particular hazardous waste or a particular hazardous waste site, and that as mentioned by Dr. Lowrance is a very complex process.

We also have a large program in health and environmental research, and this research provides the fundamental knowledge necessary to assess the risk. The assessment process then allows us to make decisions as to what actions should be taken.

I should mention that we are coordinating closely with other agencies, and that the Center for Disease Control is also assisting to a very substantial extent in the health research area.

Our monitoring program is of particular importance to both the hazardous waste RCRA program and Superfund. Our work on monitoring systems and chemical analysis provide the basic tools for identifying and measuring the concentrations of hazardous wastes. Research is needed to develop the techniques for chemical analysis, and once the techniques are developed, they can be used in monitoring actual sites and supporting Superfund activities. The Agency has established a network of contractor laboratories not under the Office of Research and Development to assist the regional offices and State governments in the routine analysis of these wastes. Our research provides many of the analytical techniques and a very important quality assurance program. The use of proper quality assurance procedures creates a written record of the quality of the chemical analyses. Such activities are now mandatory for all programs in the Agency which involve environmental measurements, and are essential if the information is to be used in enforcement activities.

Our monitoring program also includes substantial efforts in the area of remote sensing—detecting and measuring hazardous wastes in the environment indirectly. This is the work which involves use of satellites and aerial photography. These techniques have become so sophisticated that with computer assistance it is now possible to detect from the air potential abandoned hazardous waste sites through slight changes in the plants which grow on them. Using a library of older aerial photos going back over 50 years, it is often possible for us to reconstruct activities which created the problem in the first place. As examples I brought photos taken at the three sites in Rhode Island, which have been placed in the book for each of the members, and if you like I have some larger photos which you might wish to use for your constituents.

Sophisticated aerial photography is one of the most popular services which we now provide to assist State governments in managing their own environmental protection program. If a State cannot afford even our nominal charges, we can often be of assistance anyway.

Our engineering program is our largest research effort. We are studying a variety of techniques for the ultimate disposal of hazardous wastes including incineration, surface impoundment, land treatment, and landfilling. We have worked hand in hand over the last several years with our client, the RCRA office, in applying the results of our research to produce seven Technical Resource Documents describing a wide variety of engineering practices applicable to the design of landfills, surface impoundments, and land treatment facilities for hazardous wastes. These documents will be valuable references for State and local governments, particularly for permit writers.

Among the newer techniques that we are looking at are old approaches which may offer solutions to potential problems such as land treatment where certain wastes which are biodegradable can be spread on the land and detoxified entirely and destroyed on the surface of the land so that we do not have to create permanent disposal. We also have a large ground water research program which will become very productive. Assistance is provided in all areas to Superfund.

We often learn from such field experience and find research opportunities which can advance our ability to manage hazardous wastes. Our work at Coventry, R.I., is a good example. At Coventry we tried two new techniques which show great promise as valuable tools in cleaning up abandoned waste sites. Drums containing chemicals had been buried and bulk chemicals discharged into the ground. Some ground water contamination was evident and leachate had migrated from the location. First, we used ground-penetrating radar and seismic techniques to map the buried wastes and define the aquifer contamination. We complemented the use of these new techniques with conventional approaches such as the use of monitoring wells. We also studied the use of a new chemical, sodium polyethylene glycol, to detoxify halogenated organic chemicals such as PCB in the soil. This illustrates an exciting research area that may be advanced by the fact that we have 115 sites we can now monitor and learn from. There is nothing like hands-on experience to advance a research area.

In conclusion, I would like to say I have brought two people with me, Mr. Matt Bills, Deputy Office Director of our Office of Monitoring Systems and Quality Assurance, and also chairman of our Hazardous Waste Research Committee, and Mr. Steve James of our Cincinnati Municipal Environmental Research Laboratory, who actually worked on the Coventry Superfund site.

Thank you, Madam Chairman.

[The prepared statement of Andrew Jovanovich follows:]

STATEMENT OF DR. ANDREW P. JOVANOVICH, ACTING ASSISTANT ADMINISTRATOR FOR RESEARCH AND DEVELOPMENT, U.S. ENVIRONMENTAL PROTECTION AGENCY

Good afternoon, Madam Chairman and members of the Subcommittee. I am Andrew Jovanovich, the Acting Assistant Administrator for the Office of Research and Development in the U.S. Environmental Protection Agency. I am pleased to be here to discuss the EPA's research program in the area of hazardous waste management. We have a diverse program ranging all the way from pioneering work on the chemical and biological processes occurring deep underground in polluted aquifers to quick response technical assistance in the containment and cleanup of toxic chemical spills—from the use of remote sensing satellites employing infrared and laser technologies to delicate and complex chemical analyses in the laboratory using the latest in instrumentation. Although our research program is relatively new, we already have made significant progress.

BACKGROUND

Congress enacted the Resource Conservation and Recovery Act, known as RCRA, in 1976, and charged the Environmental Protection Agency with developing and enforcing regulations for the proper disposal of hazardous wastes. Just last year, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, known as Superfund, was passed and provides EPA the authority and funding for an aggressive program to deal with uncontrolled waste sites and toxic chemical spills.

Until 1979, the Agency's hazardous waste research program mostly addressed the collection, treatment, disposal and recycling of municipal and industrial non-hazardous wastes. With that work largely completed, today we have two complementary research programs, one in support of RCRA devoted mainly to hazardous wastes, and one supporting the newly enacted Superfund. The RCRA research provides the fundamental scientific and technical knowledge necessary for proper management of hazardous wastes, and the Superfund program provides assistance in applying an arsenal of already available technologies to the cleanup of waste sites and chemical spills. As our RCRA research program progresses, new knowledge and tools will become available for use under Superfund, through close coordination of the two programs.

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Sophisticated aerial photography is one of the most popular services which we now provide to assist state governments in managing their own environmental protection program. If a state cannot afford even our nominal charges, we can often be of assistance anyway.

Our engineering program is our largest research effort. We are studying a variety of techniques for the ultimate disposal of hazardous wastes including incineration, surface impoundment, land treatment and landfilling. We have worked hand in hand over the last several years with our client, the RCRA office, in applying the results of our research to produce seven Technical Resource Documents describing a wide variety of engineering practices applicable to the design of landfills, surface impoundments and land treatment facilities for hazardous wastes. These documents will be valuable references for state and local governments, particularly for permit writers.

We often learn from such field experience and find research opportunities which can advance our ability to manage hazardous wastes. Our work at Coventry, Rhode Island, is a good example. At Coventry we tried two new techniques which show great promise as valuable tools in cleaning up abandoned waste sites. Drums containing chemicals had been buried and bulk chemicals discharged into the ground. Some groundwater contamination was evident and leachate had migrated from the location. First, we used ground-penetrating radar and seismic techniques to map the buried wastes and define the aquifer contamination. We complemented the use of these new techniques with conventional approaches such as the use of monitoring wells. We also studied the use of a new chemical, sodium polyethylene glycol, to detoxify halogenated organic chemicals such as PCB in the soil.

RESEARCH PROJECTS

Selected research projects performed by or through the various ORD laboratories or offices are listed below.

SCIENTIFIC ASSESSMENT AND HEALTH EFFECTS RESEARCH

Health Effects Profiles

Hazard profiles for the characterization of hazardous waste constituents in support of RCRA.

Health effects assessments for hazardous constituents in support of interim final incineration regulations.

Development and evaluation of rapid response hazard and risk assessment techniques for single chemicals and complex mixtures.

Documentation supportng enforcement actions, including site specific hazard and risk assessments.

Integrated risk assessment methodology for mixtures.

Exposure Assessment and Evidence

Exposure profiles for characterization of hazardous waste constituents in support of RCRA.

Exposure assessments in support of 2-3 enforcement actions.

Development of human physiological monitoring guidelines needed in rapid response situations.

Population survey data collection to estimate number of people exposed to pollutants released from landfills.

Update and improvement of exposure profile methods.

Qualitative Cancer/Mutagenic Assessment

Health assessments on carcinogenicity and reproductive toxicity for enforcement use.

Assessment support for evaluation of incineration technology in generic and site specific circumstances.

Physiological monitoring guidelines development.

Provision of cancer and reproductive toxicity assessment inputs to the planned ECAO-CIN comprehensive assessment.

Screening and Identification

Postnatal ontogeny of sexually dimorphic traits.

Potential of chemical waste storage site chemicals to induce adverse effects in the development.

Hazardous waste effects on neonatal animals.

General toxicology screen, level 1 test and evaluation.

Rapid response level 1 protocol for toxicological screening of hazardous wastes.

Chemical fractionation characterization support for rapid response toxicological screening project.

Mutagenesis/carcinogenisis screening support for hazardous waste rapid response protocol evaluation.

In-house support for mutagenesis/carcinogenisis screening of body fluids and tissues.

Population Toxicology

Introduction of indicators of exposure to carcinogens and mutagens in humans.

Electrophysiological evaluation of neurotoxic hazards related to chemical wastes.

Develop field test battery of human performance impairment in human populations exposed to hazardous wastes.

Validate and apply portable human neurotoxicity screening battery.

Subsurface Transport and Fate

Determine waste mobility and develop a statement of the state-of-knowledge on waste mobility.

Develop a two-dimensional model for predicting plume locations at hazardous waste disposal sites.

Determine the adequacy of microcosms and mathematical models for predicting subsurface behavior of hazardous wastes.

Predict the ground water impacts of scenarios which combine a range of waste characteristics with various subsurface environment.

Evaluate natural processes or methods for manipulation of natural processes to permanently immobilize metal constituents of hazardous wastes.

Multimedia Transport and Fate

Develop methodologies for identifying hazardous wastes in leachates soils and sediments.

Characterize the behavior of pollutants in various media concentrating on sorption kinetics, anaerobic biotransformation kinetics, and abiotic chemical transformations in soil-water matrices.

Provide models to more accurately estimate exposure of humans to hazardous wastes on a multimedia basis.

Develop economic criteria and methods for evaluating the tradeoffs (including risks, benefits, costs, and feasibility) of alternative hazardous waste management options (e.g., land disposal, or incineration) from a multimedia perspective.

Terrestrial Routes of Exposure to Wastes

Develop methods to assess the movement, persistence, and transformation of hazardous substances in terrestrial and marine environments.

Bioassay Development

Improve and/or Develop Cost-Time Efficient Laboratory Tests for Determining the Adverse Effects of Single or Multi-Contaminant Wastes on Aquatic Life and Develop Common Denominators that Can Be Used to Predict or Assess the Relative Hazard of Environmental Pollutants.

MUNICIPAL ENVIRONMENTAL RESEARCH

Evaluation of hazardous waste storing, sampling analysis, and compatibility.

Toxicity testing methods, development, and validation.

Predicting movement of selected metals in soils; application to disposal problems.

Laboratory and field evaluation of chemically stabilized sludges.

Development of pilot scale microwave plasma detoxification process for hazardous wastes.

Laboratory and field evaluation of processes and materials for encapsulating containers holding hazardous wastes.

Air pollution sampling and monitoring at hazardous waste facilities.

Evaluate and develop techniques to concentrate hazardous constituents of liquid hazardous waste streams.

INDUSTRIAL ENVIRONMENTAL RESEARCH

Feasibility study: Offshore incineration platform phase 1, conceptual design.

At sea incineration—sampling, analysis, and environmental assessment. Data from R&D program and permitted test burns to be used to develop an updated guidance manual on incineration.

Develop a matrix on waste incinerability.

Develop an updated data base for the regulations on improved sampling and analysis protocol for destruction efficiency monitoring and on recommended continuous analyzers for specific volatile organics.

Remedial action at a hazardous waste disposal site.

Remedial action at a surface impoundment site.

Incineration of hazardous waste in high temperature industrial processes industry.

Laboratory and pilot scale incineration research.

Innovative hazardous waste treatment technology development.

MONITORING METHODS AND QUALITY ASSURANCE RESEARCH

Quality Assurance

Develop standards and reference materials for instrument calibration and performance evaluation.

Provide standards and reference materials to laboratories.

Perform validation or equivalency studies on sampling, analytical and biological methods.

Monitoring Methodology

Evaluation of sampling methods for field investigations.

Evaluation of multimedia analytical methods.

Advanced analytical methods.

Geophysical methods for subsurface characterization.

Contact sensors for groundwater monitoring.

Monitoring Guidelines

Biological monitoring for screening samples.

Subsurface monitoring with contact sensors.

Unsaturated zone monitoring.

Geophysical techniques application.

Exposure assessment at hazardous waste sites.

Mrs. **SCHNEIDER**. Thank you very much.

I would like to call on Ed Wood, director of the Rhode Island Department of Environmental Management.

Mr. **WOOD**. I would like to welcome you to Rhode Island. I think it is fitting that you have chosen to have this hearing in the State. Rhode Island has been a leader in several aspects of dealing with hazardous waste problems. We were the first State to pass a comprehensive hazardous waste law. At the suggestion of Gov. J. Joseph Garrahy, the New England Regional Commission undertook the first regional study of hazardous waste management that same year. We were the first State, and still may be the only State, to authorize a voter-approved bond issue of $2 million for hazardous waste cleanup activities. The State has also completed, prior to implementation of Superfund and using State funds only, the largest excavation of a buried drum site ever undertaken in the country.

I think this record of the State can be traced primarily to the high level of public concern and participation which flowed from the discovery in 1977 that, for a relatively short period of time, the State was the unwitting host to a variety of out-of-State haulers who created two large uncontrolled liquid waste sites at the so-called Picillo Farm in Coventry and the Davis Dump Site in Smithfield.

From the point of view of research and development, much also remains to be done to insure that all Americans will be able to approach these natural resources with a sense of assurance that the wastes of our society will not threaten the public health or the quality of our environment.

We would like to focus today on three major areas which we feel need research-and-development emphasis. I will briefly speak of each of these areas. There is an overriding need to know more about the effects of the individual chemicals which when discovered in minute quantities in our ground or surface waters can cause so much public concern. Our ability to find ever smaller concentrations of nearly all chemicals with sophisticated testing apparatus has far outstripped our ability to understand and explain what our discoveries may mean. I believe the greatest challenge facing the environmental movement will be to articulate for citizens what risks are posed by what chemicals in what concentrations.

When a citizen finds he has a certain concentration, he just wants to know can he drink the water. We do not have very good answers for him. The citizen assumes we do not know what we are doing. We do not have many good answers for all except a handful of compounds to tell people when you find 2 parts per billion in the drinking water what you should do.

The second area for research, we believe research should be expanded on the disposal techniques used to remove wastes from the environment. This is an area that I think private industry can do as far as new techniques for disposing of hazardous wastes, they can carry on much of this if and when the enforcement effort across the country expands to the point that inappropriate disposal methods are no longer possible and that companies which are getting rid of waste for $10 a barrel start to have to pay $100 a barrel. Then I think we will see the research go forward as it has in the New England area as to how to dispose of the waste in a suitable manner.

We need to begin to move away from what I think is a fixation we have had on hazardous waste during the past 5 years and to focus broader attention on the problems involved in the movement and storage and use of toxic materials which are not wastes. In Rhode Island we exert increasingly firm control over materials which fit the legal definition of hazardous waste. But these same chemicals, in forms of much greater concentration, are virtually unrecognized and unregulated when they are regarded as the raw materials of industrial or domestic enterprise. In Rhode Island in the city of Cranston, which is a city that enacted a zoning prohibition against hazardous waste disposal sites and actually prevented the location of our hazardous waste disposal treatment facility, which I think was a good proposal, within the city we had a truck going around the city picking up materials to transport to New York City. As he was going around the city the back door on the truck loosened up and he began to lose things from his truck. He lost 1,000 belt buckles and a large display case which nobody has found, but he also lost 12 out of 16 1-gallon plastic jugs of a plating material which has a high concentration of cyanide. A public-spirited citizen picked up a couple of these jugs in a box and had burns on his arms and took it down to the police station. Another one broke open and sent four police officers and a dispatcher to the hospital overcome by fumes.

If that heavily concentrated cyanide product was a very low concentration of cyanide in hazardous waste, that truck would have had to have a permit. The driver would have to have a manifest. We would have inspected the truck to make sure this did not happen. We would have had recourse to pull his permit to transport hazardous waste, but because this is material almost 100 percent cyanide, they essentially drive around the community unregulated and unrecognized. I think we have to begin to get off of this fixation just on waste and let people know that every day they are in more danger, I think, from gasoline delivery trucks driving by their house than they would from trucks carrying hazardous waste to a licensed toxic waste treatment disposal facility. This is one of the things I think we have to do in order to get things right.

Thank you very much.

[The prepared statement of W. Edward Wood follows:]

STATEMENT OF W. EDWARD WOOD, DIRECTOR, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

The State of Rhode Island has been a leader in several aspects of dealing with the hazardous waste problems which have been the central concern of the environmental movement since the late 1970's.

Rhode Island was the first state in New England to pass a comprehensive hazardous waste law, the Rhode Island Hazardous Waste Management Act adopted in 1978. At the suggestion of Governor J. Joseph Garrahy, the New England Regional Commission undertook the first regional study of hazardous waste management that same year. We were the first state, and still may be the only state, to authorize a voter-approved bond issue of $2 million for hazardous waste cleanup activities. The state has also completed, prior to implementation of Superfund and using state funds only, the largest excavation of a buried drum site ever undertaken in the country.

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From the point of view of research and development, much also remains to be done to ensure that all Americans will be able to approach these natural resources with a sense of assurance that the wastes of our society will not threaten the public health or the quality of our environment. We would like to focus today on three major areas which we feel need research and development emphasis.

But these same chemicals, in forms of much greater concentration, are virtually unrecognized and unregulated when they are regarded as the raw materials of industrial or domestic enterprise.

Drinking water standards have been set for trihalomethanes. SNARLS, Suggested No Adverse Reaction Levels, have been advocated for a few of the chemicals such as 111 trichloroethane, trichloroethylene, and tetrachloroethylene. Risk levels have been used for a few potential carcinogens but there are hundreds of these substances which we have no guides as to their effect, even in drinking water. Practically no information is available regarding their effects on aquatic life. Are some of these compounds synergistic, that is having a greater effect than the sum; or are they antagonistic? Should all the halogenated organic chemicals be additive? If so, what levels can be tolerated? What about nonhalogenate aeromatics?

The person that has these substances in his well wants to know simply, "Is the water safe to drink?" He's dismayed when told that we do not know and considers us bureaucratic morons. This is not a potential problem—it is real; it is here today. Meaningful research should be expedited to determine the relative health significants of various concentrations of these chemicals as well as to develop information on the type and urgency of actions to be taken to protect the public. The effect these chemicals have on aquatic life and the environment also needs to be researched, of course, but these needs are secondary in comparison to the effects on human health.

DISPOSAL ALTERNATIVES

Extensive research and development needs to take place regarding the disposal of hazardous wastes. In the past many of these wastes have been disposed of by burying in the ground; not realizing the potential effect such a practice has on our important groundwater supplies. Many of these wastes, particularly from the private sector, have been disposed of in our municipal wastewater disposal systems. Recent emphasis by environmental organizations and the EPA on municipal wastewater disposal by land application has rekindled the use of the groundwater systems to renovate wastewater. This has intensified the problem as we are finding through sad experience that many of these chemicals pass through the ground and move with the groundwater relatively unchanged, only receiving a certain amount of dilution.

Toxic compounds such as pesticides, trace amounts of metals, cyanides, phenols, radioactive waste, solvents and hydrocarbons are the by-products of our technological age and are posing an increased threat to public health. Even in low concentration these products are believed to represent potential threats to our water resources if not properly handled, stored and disposed of. We have learned with sad experiences that disposal of these materials into the ground where they are out of sight is not the proper means of disposal.

The technology has been developed for the removal of most of our metals by chemical precipitation or by ion exchange. However, these methods are expensive. Incineration has been developed for many of our organic solvents. However, there are many compounds for which we do not have the technology that is necessary for proper disposal, particularly when we have a combination of metals, organic chemicals and inorganic chemicals, as is common. One chemical may interfere with the separation or removal of the other chemical. Some of these wastes are gels, solids, liquids and all kinds of combinations. Research is necessary to develop proper means for disposal of each one of these wastes with emphasis on recovery.

We have relied upon industry to develop feasible means for disposal of these substances; however, for economic reasons, industry has not kept abreast with proper disposal of the waste they are producing. Incineration has been generally accepted as a means of disposal of organic materials, but are we sure that this is not just transferring the problem? Are we destroying the organic matter by incineration or evaporating the material to be condensed in the environment for widespread distribution? We are finding that air pollution control scrubbers on incinerators are loaded with organics we thought would be destroyed. So we merely transferred the chemical from one form to another where it may be more difficult to remove.

NON-WASTE TOXICS

Although we are talking primarily about hazardous waste, don't we need to have better control over the production, the storage, the transportation and the use of all hazardous materials? Many of our problems have been the escape of variable materials through transportation, storage or use to the environment. Should industry using some of these hazardous materials be required to have special locations here the damage in the case of accidents would be minimized? Shouldn't we have better control over the transportation of these wastes as highway and rail accidents are not uncommon? A simple gasoline station with a very small leak of product into the ground has destroyed aquifers and caused untold damage to the public. How can we prevent this? What is the safe life of a gasoline storage tank? No one knows. Shouldn't some governmental agency require replacement of buried tanks periodically? If so, what period? Bear in mind that once oil, gasoline, or a hazardous substance escapes into the ground, very little can be done but sympathize with the well owner down gradiant.

Mrs. **SCHNEIDER.** We heard previous witnesses discussing the need for better distribution of information to the public. I believe we have received information recently that the EPA budget for technical information and liaison work has been cut by 50 percent in the hazardous waste budget. This has gone from $2 million to $1 million, and I am wondering, if it is really wise in that this information is really being paid for by public moneys, that the public be deprived of this information which might better focus public action rather than reaction to the toxic waste issue?

Dr. JOVANOVICH. I am not familiar with such a cut. The Superfund adds enormously to our capability. I have been emphasizing getting items in the budget which would call for technical assistance and technology transfer. In the past it has been difficult to get that because nobody believed it would be used for that.

Mrs. SCHNEIDER. I would like to know that, because it is a line item in the budget.

Mr. CARNEY. That is fiscal year 1982?

Mrs. SCHNEIDER. Yes.

Mr. CARNEY. I just wanted that clarification.

Mrs. SCHNEIDER. The other question also relates to budget cuts insofar as the hazardous waste monitoring budget. That apparently has been reduced by 30 percent, and our committee has received a memo that states that this reduction reflects the decision to postpone research on capillary column applications of gas chromatography, mass spectrometry methods to rely on available methods for the current fiscal year. This is a situation where I am wondering if we are making the right decision by adhering to the deferral recommendations in this area of monitoring of hazardous wastes? It seems to me it might be pennywise and poundfoolish in that regard.

Dr. JOVANOVICH. Could I ask Mr. Matt Bills to answer some of these, since he is the research committee chairman. The overall research program has been growing. We have made adjustments in the distribution in the program according to the wishes of the RCRA office.

Mr. BILLS. In the technical information area I believe you are quoting for technical information in 1982; the total budget for that year is $190,000.

Mrs. SCHNEIDER. 190.5.

Mr. BILLS. That is up from $166,000 in 1981.

Mrs. SCHNEIDER. But recently through deferrals this has been cut by 100, has it not? Excuse me—200.

Mr. BILLS. Not in 1982, to my knowledge.

Mrs. SCHNEIDER. The fiscal year 1982 budget amendments you are saying do not cut it by $200 million—by $90 million, rather?

Dr. JOVANOVICH. Our figures reflect December 12 budget cuts.

Mrs. SCHNEIDER. Perhaps we can compare our figures later on. But, could you respond to my inquiry about budget cuts insofar as the monitoring is concerned in addition to the information?

Mr. BILLS. In the monitoring program there was approximately—these are the 1982 funds—a 15-percent cut, and that was mostly in the development of quality assurance methods for the program. A lot of those methods were about halfway completed in 1981, and there was a reduction there.

Mrs. SCHNEIDER. Is that to imply that those methods developed in 1981 will or will not be used?

Mr. BILLS. They will be used.

Mrs. SCHNEIDER. But they have just completed research on developing those methods?

Mr. BILLS. That is correct. We will then go into field applications under both RCRA and Superfund.

Mrs. SCHNEIDER. Congressman Brown.

Mr. BROWN. Well, I am not quite sure how to approach this, but we have heard testimony here from Mr. Kinder indicating the great importance that he places on the EPA's regional laboratory facilities. Is that one of these contractor labs that you referred to, Dr. Jovanovich, or is that research labs?

Dr. JOVANOVICH. Each regional office has its own laboratory. These laboratories are not part of the Office of Research and Development. There are studies underway to see if we can reduce costs by consolidation of some of them. I do not think any decision has been made, and it will be quite a while before it is. Of course every region is certain it will lose its lab, and in the end we might conclude that every region needs one.

Mr. BROWN. I think in the end every region does need one. If we are going to improve our local data base with regard to describing the kind of pollutants that exist and so on, there is a great deal of chemical measurement at least that needs to be made. Whether this is properly categorized as research I do not know, but I really did not want to get into that. What I am concerned about is what is going to happen, if what I see in the local press in Washington is anywhere close to true, is that what we have now is a battle between the director of EPA and Stockman as to whether we get a 35-percent cut or a 50-percent cut in your budget. This makes Ms. Gorsuch look very good, because she is fighting for only a third cut or whatever the numbers are. And Mr. Stockman is Mr. Bad Guy now instead of Ms. Gorsuch being Ms. Bad Guy.

The real question that I have, and I do not expect to see it answered this afternoon, because we just do not have the time to go into it, is how you will grapple with those kinds of cuts in your research budget in the light of the things that we have heard here today about the need for additional research and the obvious number of unsolved problems that we have across the board in terms of environmental health effects, environmental monitoring, environmental what have you. And you may speak to that subject for 1 minute if you wish.

Dr. JOVANOVICH. Thank you, Mr. Brown. That should be all I need to answer.

We are not retreating from our goals. There is a great deal of budget uncertainty at the moment. Protecting the environment is an important national goal, and I believe reducing Federal spending has also become an important goal. We do not like reducing budgets. You do lose something. We have not volunteered to do anything any other agency has not had to do, and we are more fortunate than some, I believe. Research for the first time in EPA has a legitimate place. We have a lot of scientists and engineers in top positions that have been brought in, including the Deputy Administrator, and I am convinced that we will make every effort to protect the research program. As I said, there is great uncertainty at the moment

In looking at the cuts we have taken to 1982, we have carefully prioritized what we are doing and tried to emphasize those areas of greatest importance. That is why the RCRA program grew from

1981 to 1982, even after considering the cuts. You add to that the Superfund program, and we have up to a 50-percent increase in our efforts in this area built on what was already a fairly substantial base. We face a most difficult problem when the Agency failed to take effective action to address the problem. There was the excuse that Congress had not provided sufficient resources. We need to succeed now where our predecessors often did not do too well, and we cannot come back to you and say that we could have succeeded only if you had given us more money. I think we need this committee's help to find ways that we can reduce the budget in order to retain an effective program.

Mr. **Brown**. I think this committee is probably going to be able to help you, but I am not sure how much we will be able to help immediately.

Mrs. **Schneider**. Mr. Carney.

Mr. **Carney**. My colleague, Mr. Fish, asked if I would yield at this time.

Mr. **Fish**. I just have one question. You might recall Dr. Lowrance, referring to my interest in PCB's, I was interested in your statement. You say we have also studied the use of a new chemical which I will not try to pronounce to detoxify chemicals such as PCB's in the soil. This approach may someday allow us to treat contamination onsite. I have two questions. When you say in the soil, would this apply to PCB's at the bottom of the river, and second, when is the someday we expect?

Dr. **Jovanovich**. I would not expect we would ever be able to apply it in the rivers. I would never expect we would be able to apply it under water. But it is a new technique that was tried at the Coventry site, and it did show the ability to reduce the PCB content of the soil dramatically in the samples tried. We have to try it further. We have to look at what other implications it has. It may do things such as increase salinity in runoff and cause other problems. This is just one of many techniques that are being tried for stabilization or detoxification of wastes.

Mr. **Fish**. Thank you very much.

Mr. **Brown**. Would you yield to me, Mr. Fish?

Mr. **Fish**. He is yielding.

Mr. **Carney**. I would be glad to yield, Mr. Chairman.

Mr. **Brown**. I recently recall reading that a scientist, and I think it was Dr. Jack Lombardi, who has been in public notice before in connection with DNA matters, was developing a new strain of bacteria particularly able to, shall we say, eat or destroy or whatever is required to handle PCB's. I do not know what the status of that was, and I do not know whether that is what you were referring to in your statement about PCB's or not, but let me ask you if you feel that there is any possible answer to some of these decontamination problems through the process of recombinant DNA research and if you are doing any of that.

Dr. **Jovanovich**. I believe I heard from people who were trying out some of these bacteria which you could spread on land and they would act to digest the waste. I believe we are trying some of these techniques in the laboratory. They are rather new.

Mr. **Bills**. There is innovative research work going on at our Cincinnati laboratory.

Mr. **Fish.** Is there any danger of the PCB eater becoming an enormous animal and tramping around the countryside?

With that I will leave.

Mrs. **Schneider.** Is he leaving out of embarrassment?

Mr. **Fish.** No; I have got to make a phone call.

Mrs. **Schneider.** Mr. Carney, do you have questions?

Mr. **Carney.** I have several questions. I understand that I can use Mr. Fish's time. How much of the hazardous waste that you talk about, Mr. Kinder, in New Hampshire, is generated within the boundaries of New Hampshire? Do you have any handle on that?

Mr. **Kinder.** The site that I referred to, the Sylvester site, nearly all of it came from out of State. It is like a boomerang. Even some of that was generated originally in New Hampshire, went to what was thought to be a legitimate facility in the State of Massachusetts, and then came back through illegal disposal to New Hampshire. I could not guess. Certainly New Hampshire generates hazardous waste, and some of that waste is causing a problem.

Mr. **Carney.** Has the Attorney General's Office proposed control for the hazardous waste within the State of New Hampshire?

Mr. **Kinder.** Our hazardous waste cleanup fund, passed by the legislature in the last year, made an effort to encourage the siting of a facility in New Hampshire by making some funds that were generated by essentially the fee on the generation of hazardous waste, making some funds available for a community that a site was proposed to be located in in hopes that would encourage the community to look into it and to accept it. But no site has been proposed by the State as of yet.

Mr. **Carney.** As in the Attorney General's Office, you are in a unique position to deal with the enforcement of this. Would you agree that by making it easier for someone who has to utilize hazardous wastes to dispose of them, it would encourage them to dispose of them properly under strict rules and regulations and it would make it easier for you to enforce laws?

Mr. **Kinder.** There is no question that the answer to this problem is the siting or the establishment of suitable waste disposal facilities, and that goes for every State.

Mr. **Carney.** Thank you. Mr. Wood, before, I asked a hypothetical question of some of the industry here. You are indeed involved in this business on a State level. Is it the intention of the State of Rhode Island to try to locate a hazardous waste site within the State?

Mr. **Wood.** Yes; I think it is the intention of the State to try to make it a hospitable place for a properly engineered and regulated disposal facility. I think as a direct point, in the city of Cranston, which I mentioned earlier, there was a facility proposed on a site which was actually an industrial park owned by the State and run by a State commission. That industrial park was subject to local zoning in the act which created that; the city zoned it such that hazardous waste would not be a permitted use.

In answer to the former question you asked about could the Governor support a hazardous waste facility siting and still be reelected, I certainly hope so, since he is supporting them in various places in the State. However, I cannot imagine in Rhode Island or in any other New England State that I am aware of that any mayor or city councilperson could actively support putting a hazardous waste facility in the local community and get reelected.

Mr. **Carney**. I can appreciate that. Can I ask a question of Dr. Jovanovich, please?

Mrs. **Schneider**. Surely.

Mr. **Carney**. The figures that were given before by Dr. Peterson indicated that there was a 50-percent cut in the 1982 EPA budget. Is that because we have removed EPA grants from the budget process that we know of being EPA and put it into a separate program or is that going to be a total 50-percent reduction after you consider the $2.5 billion grant money that the administration has proposed?

Dr. **Jovanovich**. I am not as familiar with the overall agency budget, but I did understand that a lot of it was the grants program. Within the Office of Research and Development certainly there has been a reduction of that size since 1981.

Mr. **Carney**. Thank you. I thank you for your indulgence, Madam Chairman.

Mrs. **Schneider**. Congressman Weber.

Mr. **Weber**. You may have responded indirectly to this, but Dr. Peterson in his testimony referred to the discriminatory budget cuts the administration has leveled at EPA. Would you respond to that characterization of those cuts and whether you think that is an accurate statement or not?

Dr. **Jovanovich**. In the past if you had had such cuts they would have often come out of research and development. Anne Gorsuch has been very supportive in this area. Our cuts were very discriminatory in the Office of Research and Development. We looked very closely at the programs and tried to prioritize as much as possible before we got anything.

Mr. **Weber**. That is very interesting. I am not sure that was what Dr. Peterson meant. I have no further questions.

Mrs. **Schneider**. Congressman Gregg?

Mr. **Gregg**. Mr. Kinder, in your dealings with the EPA as the first site in the Nation that has entered into a cooperative agreement, is it safe to say that the EPA has been responsive and reasonably efficient?

Mr. **Kinder**. Responsive I think is accurate. Both EPA and the State were in a difficult position since there really were not any ground rules and we kind of had to make them up as we went along, so it was by no means an easy process. Certainly there was a good faith effort to be as efficient as we could be under the circumstances.

Mr. **Gregg**. Governor Peterson made the statement that the Superfund was not being administered or the implication was that Superfund was not being efficiently distributed. My impression in New Hampshire was that we got very fair treatment.

Mr. **Kinder**. I think the reference was to the national contingency plan, which has been a disappointment to a number of people, hoping that it would come along faster than it has. There are still a number of issues that need to be resolved before the cooperative agreement process can go forward smoothly, but it is obviously a complex task.

Mr. GREGG. You mentioned that the dumping at the Nashua site came from out of State. To what extent do you feel organized crime was involved in that activity, if any?

Mr. KINDER. On that site we do not have any evidence of direct involvement.

Mr. GREGG. How about in the other midnight dumping sites?

Mr. KINDER. I would say we do not have any evidence of direct involvement.

Mr. GREGG. Thank you.

Mr. CARNEY. Madam Chairman, that is a very good question he asked of the gentleman from New Hampshire. I was wondering if we could ask that of the gentleman from Rhode Island.

Mrs. SCHNEIDER. Sure, you can ask it.

Mr. WOOD. I do not have any direct knowledge. There are elements of the Picillo site that have been investigated by the Rhode Island State Police, and I think there are things that might come out in the civil court case that will be heard within the next year, but I have no direct knowledge that I could testify.

Mr. CARNEY. I did not mean to say that of Rhode Island—I would readily say that much of New York's problem is directly connected with organized crime in this business, and that is one of the problems that we are dealing with nationwide.

Mr. WOOD. You have the suspicions here for the two sites because of the people involved and past criminal records.

Mr. CARNEY. I appreciate that.

Mrs. SCHNEIDER. I have a final comment. Dr. Jovanovich, it has been brought to my attention that insofar as the PCB ground contamination activities are concerned at the Picillo site, there was no public awareness of those activities and there is a public information organization. Mr. Wood, were you familiar with the fact that EPA was running PCB testing on the site?

Mr. WOOD. Certainly. It was actually done by a contractor. It was a consultant to EPA. Certainly some local people were involved with that.

Mrs. SCHNEIDER. Unfortunately or fortunately—I would like to thank the expert witnesses, and now call members of the press before us, but unfortunately we have only 3 minutes for all of you to ask questions before we must adjourn, so your questions do have to be short and sweet.

The hearing is formally adjourned. We thank the public for attending. We hope it has been useful and profitable, the information that you have received today. Members of Congress, you will please stay here so that the press can ask you some questions.

[Whereupon, at 4:57 p.m., the subcommittee was adjourned.]

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